Defense AT&L

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Afghan First

Building a Stable Economy Through Strategic Acquisition

Contracting as Counterinsurgency:
The Economic Path to Victory in Afghanistan

The Future of Defense Technology and the Lessons of History

Burnside's Bridge and Lessons Learned for Program Management

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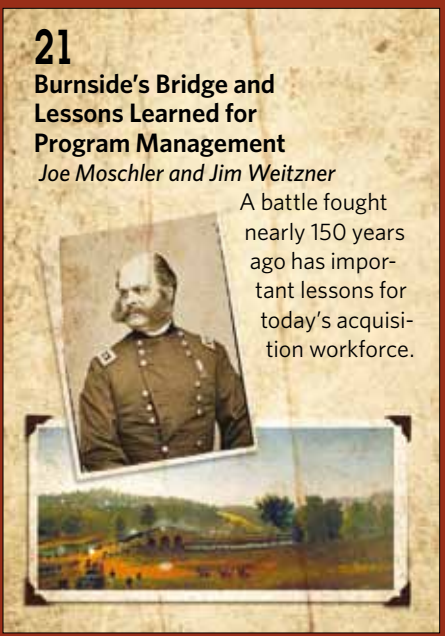

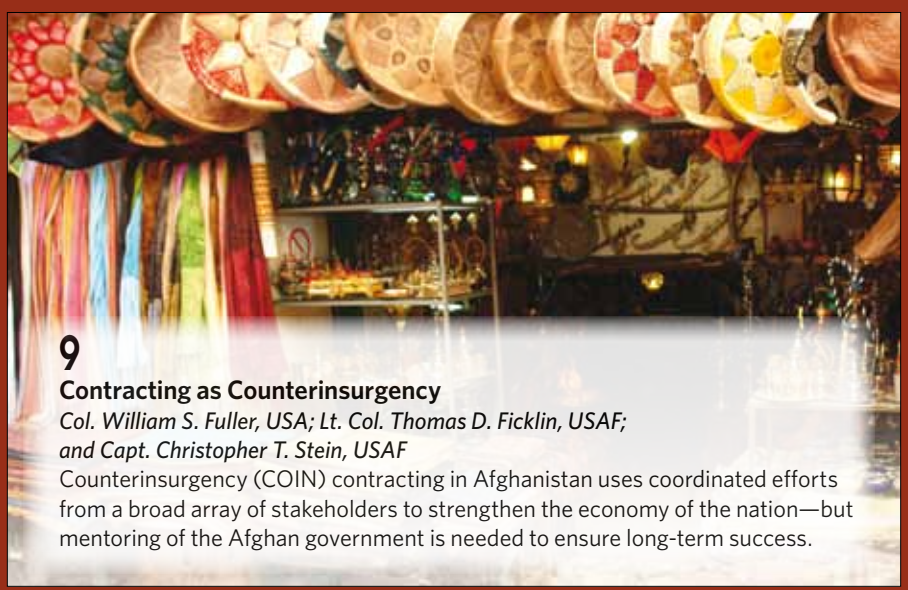

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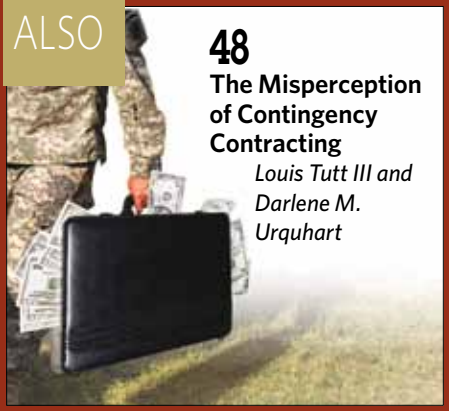

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Editor's Note:
*We received many letters in response to Air Force Lt. Col. Dan Ward's recent article "My Big Slow Fail" (*Defense AT&L *Jan.-Feb. 2011, pp. 17-20). Below are two examples.*

Essence of Entire Defense Acquisition System

I stumbled across Dan Ward's January 2011 *Defense AT&L* article ["My Big, Slow Fail"] on his "highly successful" procurement. When I was reading the article, I actually thought it was a story about a procurement in my agency. I think his excellent article captured the essence of our entire Defense Acquisition System. I've been in the acquisition business since 1988 (mostly Air Force, but DoD since 2002). This story/experience is probably representative of a thousand procurement actions—it is often the norm rather than the exception, and details the life of a typical acquisition program manager. It is a very frustrating business.

What makes matters worse is that Congress and OSD keep flowing down requirement after requirement that throws additional "just one more thing, or two, or three…" into the mix, such as National Defense Authorization Act of 2008, Section 801(b) requirements, or new Office of the Secretary of Defense/Office of Federal Procurement Policy/Department of the Treasury Interagency Agreement requirements, etc, etc, etc. Then the powers that be send out a flurry of policy memos and directives calling on all acquisition personnel to cut bureaucracy, burdensome requirements, unnecessary steps and requirements, start "streamlining," etc. We just sit there with our heads doing the Exorcist routine half laughing and half crying. I remember in the "old days" somehow we just used to get things done, and it was certainly more fun, but not anymore—it's worse than a root canal. We have every hand, toe, and finger tied up.

Regardless, I enjoyed Dan's very accurate and representative article, and hopefully many will read it.
Joseph Avery
Defense Threat Reduction Agency

Need for More Critical Articles

As a long time DoD acquisition professional and as an author of articles in the *Defense AT&L Magazine*, I am compelled to write and compliment Dan Ward on an exceptional article: "My Big, Slow Fail." The article is exceptionally well written and helpful.

Far too often, *Defense AT&L* articles are little more than the authors commending themselves on how well they accomplished a task. It's rare to see critical articles. This is unfortunate because, only by acknowledging one's shortcomings, is improvement possible.

Dan Ward's article is the best that I've read in this magazine in several years. My sincere compliments!
Ron Klein
Huntsville, Ala.

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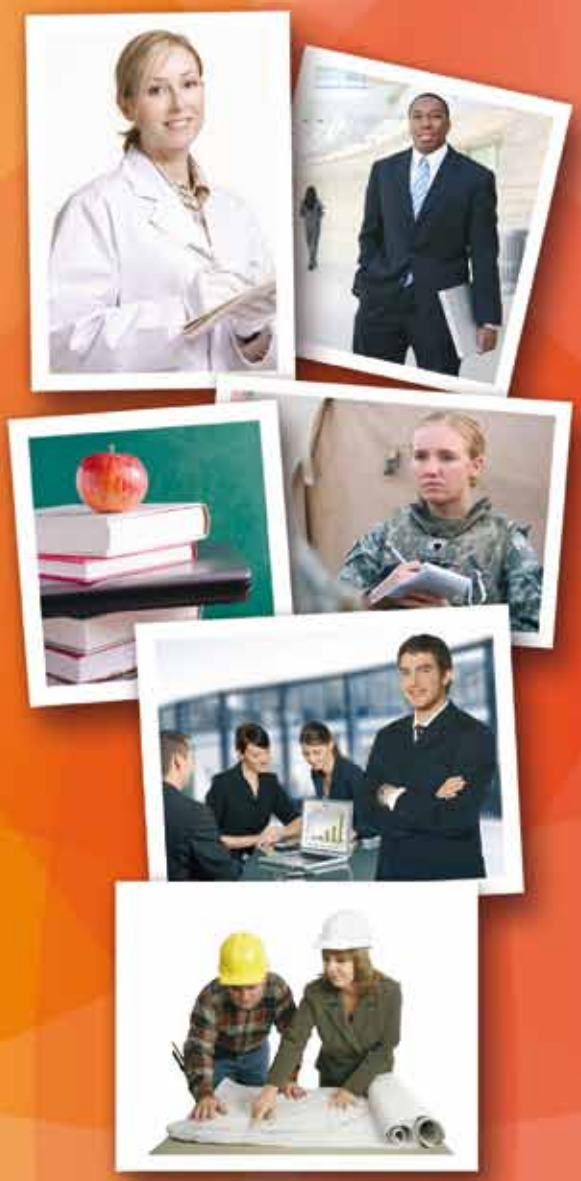

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DoD Acquisition
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A single, authoritative source of useful, validated, actionable practice information

Do these issues sound familiar?

- There are many practice lists to choose from but no guidance for selecting specific practices
- "Proof of practice" effectiveness is usually not available
- The connection between practices and specific program risks are undefined
- Success factors for practices are not well documented
- Implementation guidance is often missing
- The cost and timeliness associated with implementing and using the practices are often not specified

The BPCh can help by:

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Afghan First

Building a Stable Economy Through Strategic Acquisition

Maj. Darren W. Rhyne, USAF

The policy called "Afghan First" has been in effect on paper since 2008. However, efforts to implement the policy really began in earnest in late 2009 and early 2010. This policy is part of the larger counterinsurgency (COIN) effort to help Afghans rebuild their country by providing legitimate, sustainable business opportunities to Afghan companies and jobs for

Air Force Maj. Darren Rhyne, on assignment to Camp Eggers, Kabul, Afghanistan, as the local acquisition chief visits Safi Apparel during production of Afghanistan National Police uniforms on April 13, 2010. An unidentified Safi Apparel security guard escorts Rhyne around the production department.

Afghan citizens. The Afghan First Policy was first codified in the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110-181, Sections 886, January 2008) and is implemented by the Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 225.77.

Origins of Afghan First

The Afghan First Policy was pontificated by U.S. Ambassador to Afghanistan Karl W. Eikenberry and Commander, U.S. Forces Afghanistan (USFOR-A) Army Gen. Stanley McChrystal in a mid-2009 white paper. The white paper was reaffirmed by Eikenberry and new USFOR-A Commander Army Gen. David Petraeus in July 2010. Petraeus, who is dual-hatted as commander of the International Security Assistance Force (COMISAF), reiterated the Afghan First Policy in his Sept. 8, 2010, "COMISAF's Counterinsurgency [COIN] Contracting Guidance" memo to commanders, contracting personnel, military personnel, and civilians of North Atlantic Treaty Organization International Security Assistance Force (NATO ISAF) and USFOR-A.

The USFOR-A Resource Management Directorate (J8) also supports the Afghan First Policy through its Publication 1-06, "Money As A Weapons System–Afghanistan," last updated January 2010. To permeate this guidance from the brigade to the company level, the U.S. Army's Center for Army Lessons Learned (CALL) published the "Commander's Guide to Money as a Weapons System" in a handbook in April 2009. Central Command (CENTCOM) Contracting Command has also incorporated the Afghan First Policy and COIN Contracting Guidance into its "CENTCOM Contracting Command Acquisition Instruction," last updated Nov. 5, 2010. In April 2010, NATO joined with U.S. efforts by officially publishing its own Afghan First Policy. Thus, a wide and comprehensive legal, financial, and contracting foundation is available to deployed program managers through which to implement the Afghan First Policy.

The Local Acquisition Office within the Security Assistance Office–Afghanistan (SAO-A), in which I was deployed from February 2010 to February 2011, is part of the larger NATO Training Mission–Afghanistan/Combined Security Transition Command–Afghanistan (NTM-A/CSTC-A) led by Army Lt. Gen. William Caldwell IV. The SAO-A Local Acquisition Office is at the forefront of implementing the Afghan First Policy while executing over $350 million in FY10 DoD Afghanistan Security Forces Funds (ASFF) to outfit and sustain the Afghanistan National Security Forces (ANSF), which comprise units of the Afghanistan National Army (ANA) and Afghanistan National Police (ANP). This is acquisition program management deployed at the pointy end of the spear.

The Heart of Afghan First

In my view, four parts of this Afghan First Policy are occurring concurrently.

Keep Money in Afghanistan

First, U.S. and Coalition forces buy as many commodities, life support services, and construction services from Afghan companies as are practical and feasible. This helps employ Afghan citizens and keeps a large percentage of the money spent on Afghanistan here in Afghanistan. However, Afghan companies through which items are imported from other countries don't employ many Afghans, nor does much of the money spent with the Afghan company stay in Afghanistan; it goes to Pakistan, China, Turkey, or to wherever the Afghan company purchases the items. Life-support services, such as maintenance, housekeeping, and waste-water removal, can be predominantly purchased through and conducted by Af-

ghan companies using Afghan workers, and this is being done for many U.S., Coalition, and ANSF facilities. Construction using Afghan companies and workers is more challenging since the materials and skilled labor to build to international standards are scarce in Afghanistan. The nearest Underwriters Laboratory is located in India. However, this is beginning to change through some fledgling Afghan companies and trade schools with aid from the U.S. Agency for International Development, the DoD Commander's Emergency Relief Program, the U.S. Army Corps of Engineers, and the Afghan Builders Association.

U.S. and Coalition forces buy as many commodities, life support services, and construction services from Afghan companies as are practical and feasible. This helps employ Afghan citizens and keeps a large percentage of the money spent on Afghanistan *in* Afghanistan.

Ramp Up Domestic Production

The second part is taking this Afghan First Policy one step further and actually having Afghan companies make as many of the products we're buying as possible in Afghanistan instead of importing them from other countries. This way, even more of the money we're spending here actually stays in the country and, more importantly, even more jobs are directly created here. This has second-order effects in that these manufacturing companies and their employees support other businesses in their local communities, such as laundry services and restaurants, with the money they are making, thereby employing even more people and contributing more to their local economies. This gives these workers a real, legitimate, sustainable alternative to earning money from the insurgency. A joint venture between an Austrian company and an Afghan company was signed on Dec. 29, 2010, to make and test transformers certified to European standards in Kabul starting in March 2011.

Emphasis on Quality and Pride in Domestic Production

The third part of Afghan First is proving to the Afghan government and its citizens that quality goods can be made here at reasonable prices so they don't have to buy these goods from other countries. In this effort, we are working shoulder to shoulder ("*shona ba shona*" in Dari) with our counterparts in the Ministries of Defense and Interior to include their inputs in the requirements for the items we buy for them, and invite them to attend our inspections of the businesses who make these items so they can see for themselves the quality and pride the companies put into these products. Our ANA and ANP counterparts are also there with U.S. advisors at the ANSF depots and other sites to help inspect and accept the deliveries. We are currently working to transfer responsibility and funding to buy some commodities to the Ministries of Defense and Interior for items we currently buy for them. That will really be an Afghan First accomplishment: products made by Afghans, for Afghans, procured by Afghans!

Teaching Businesses to Compete in Commercial and International Markets

The final part and ultimate goal of the Afghan First effort is to work with Afghan businesses to help them improve the quality of their products and business management skills to sustain themselves and eventually compete in the commercial and international markets. We—NTM-A/CSTC-A—can't buy the manufacturing equipment for the companies, but we can provide business opportunities for which they can compete. We do not want them to be focused on just making products for the Afghanistan National Security Forces, but to also take the experience and working capital they have earned through our contracts and apply them to the commercial markets in Afghanistan and the international commercial and military markets. This will help Afghanistan better support itself and contribute more to the regional and international communities.

Teamwork

My office—SAO-A Local Acquisition Office—grew from five to 12 military people in 2010 and is at the forefront of implementing the Afghan First Policy. It is a joint team comprising officers and enlisted personnel from the U.S. Army, Navy, and Air Force, plus three Afghan local nationals who provide accounting and interpreter services. The SAO-A Local Acquisition Office is responsible for buying some, but not all, of the locally procured products to outfit and sustain the units of the ANA and the ANP. The commodities purchased by the SAO-A Local Acquisition Office on behalf of the ANA and

Air Force Maj. Darren Rhyne, a DAU professor deployed as the Local Acquisition Chief, Camp Eggers, Kabul, Afghanistan, visits a new sewing machine factory Oct. 21, 2010, built by the Afghan Vision Group (AVG) in anticipation of winning future contracts. AVG purchased its sewing machines from the Juki company in Japan.

ANP are: uniforms; boots; organizational clothing and individual equipment (OCIE)—except for Kevlar helmets, armor plates, weapons, and ammunition; tents; Conex storage container-based temporary shelters (offices, living quarters, showers, kitchens, etc.); generators; force protection materials (barriers, t-walls, gravel, etc.); office supplies; cleaning supplies; kitchen supplies; and furniture. Our FY10 budget from the DoD's Afghanistan National Security Forces Fund for March 2010 to March 2011 is approximately $350 million.

Prior to 2010, while we bought the mentioned items from Afghan companies, hardly any of them, except uniforms, were actually made in Afghanistan. With the influx of personnel to the office in 2010, we concentrated on transitioning items purchased via Blanket Purchase Agreements (BPAs) with Afghan companies, which were free to import those items made to non-standard specifications, to have the items made by Afghan companies in-country. Now we fund Indefinite Delivery, Indefinite Quantity (IDIQ) contracts with one company making boots, five companies making uniforms, and three women-owned companies making 23 other OCIE items. We also fund BPAs with six Afghan companies who refurbish Conex storage/shipping containers into temporary shelters such as offices, living quarters, kitchens, guard towers, latrine/shower/shave units, and mobile armory and repair containers. In addition, we fund two Afghan companies making tents and two Afghan companies making some furniture, such as beds, mattresses, and wooden chairs, tables, and desks. We estimate that over 6,000 Afghans are directly employed through these IDIQ contracts and BPAs.

In the summer of 2010, my footwear program manager and the contracting officer from Kabul Regional Contracting Center conducted a source selection to select more Afghan combat boot manufacturers. As a result, we expect two more IDIQ contracts to be awarded with two more Afghan companies to make boots to U.S. specifications in Afghanistan in early 2011. Also in 2011, we plan to fund IDIQ contracts with several Afghan companies to make nylon-based tactical gear items such as 3-day packs, ruck sacks, hydration packs, and tactical vests, plus field jackets. We also plan to fund IDIQ contracts with several companies to make Conex storage container-based temporary shelters. All of these items will be made to specifications provided by the U.S. Government in the contract instead of with little to no specifications on BPAs as was done in the past.

Partners Make the Difference

The SAO-A Local Acquisition Office hasn't done all of this on its own. We have had great support, both through reach-back and temporary duty visits from personnel at Natick Soldier Research Development and Engineering Center (NSRDEC). NSRDEC also contracted with Clemson Apparel Research and brought two of their experts along with two of Clemson's to Afghanistan on a 2-week Afghan clothing and textile industry assessment in August 2010. We also obtained government-owned uniform, boot, and other OCIE specifications from Defense Supply Center Philadelphia (DSCP, now Defense Logistics Agency Troop Support). We also enjoy a great working relationship with the deployed contracting professionals at Kabul Regional Contracting Center and the deployed representatives from Defense Contract Management Agency. The support from these agencies makes this effort possible.

Helping Afghans Help Themselves

We are proud of the accomplishments of our office and our Afghan government and business partners in helping Afghans rebuild their economy and their country. The products purchased by the SAO-A Local Acquisition Office and other NTM-A/CSTC-A organizations from Afghan companies, especially those made here by Afghan workers, directly contribute to the Afghanistan National Security Forces' efforts to restore security and economic prosperity to all Afghan citizens.

Rhyne *is a professor of systems engineering management, Engineering and Technology Department, Capital and Northeast Region, Defense Acquisition University, Fort Belvoir, Va. He wrote this article while on assignment from February 2010 to February 2011, to Camp Eggers, Kabul, Afghanistan, as Local Acquisition Chief. The author welcomes questions or comments and can be contacted at* **darren.rhyne@dau.mil**.

Contracting as Counterinsurgency:

The Economic Path to Victory in Afghanistan

Col. William S. Fuller, USA ■ Lt. Col. Thomas D. Ficklin, USAF ■ Capt. Christopher T. Stein, USAF

Driving through Kabul, we marveled at the vibrancy of the city. Donkey carts loaded with produce competed for space with mopeds stacked high with tattered boxes. Street side shops bustled with activity as young boys aggressively marketed their crafts, customers surveyed fresh fruit, and butchers hung their kill. We darted around jingle trucks, past towering cranes, and between buildings filled with machinery—all indicative of Kabul's industrial expansion. Pulling into the Kabul Melli Boot Factory, we were greeted by smiling faces and the traditional hand-over-heart gesture as workers diligently cut, sewed, glued, and pounded, what would become inexpensive Afghan-made boots for the Afghan National Security Forces.

Just as the quality of Melli boots depends on the craftsmen's effective use of their tools, our counterinsurgency (COIN) efforts depend on the robust, effective, and synchronized use of each element of our national power. It is not enough to free Afghanistan of insurgent violence; we must transform the country by creating enduring political and economic change. This involves targeted—and coordinated—efforts by the U.S Government, the International Community (IC), and Nongovernmental Organizations (NGOs).

Background

Afghanistan suffers from an inversion of incentives and perceived corruption that allows insurgents to destabilize the government and operate a separate illicit economy that fuels their combat operations. Normal economic incentives are distorted because it is foreign development agencies and NGOs that employ workers, economic aid goes to the government, and charities meet basic needs. Additionally, government legitimacy is destroyed by tribal patronage that leaves the population disconnected and disheartened. In the absence of a free market and central economy, networks form based on language, ethnicity, and religion to ensure family and tribe survival. This tribalism permeates national government as members rise in status and seek to reward their tribe and consolidate power.

The most efficient and enduring path to success in Afghanistan is through the creation of a sustainable economy that complements and supports a stable security situation and effective governance. To generate enduring economic and political reform, U.S. efforts should focus on empowering the business sector to meet Afghan needs. Afghanistan must move beyond foreign aid dependency to a healthy entrepreneurial economy centered on thriving businesses. By focusing our efforts on business, we impart self-reliance, allow for organic growth that responds to opportunities as they arise, and encourage economic diversity as robust layers of enterprise arise to support everything from design to manufacturing, transportation to labor. Once these businesses develop a consistent revenue stream, their taxes help the government earn the trust and support of the Afghan people while further expanding the economy through infrastructure development and the provision of life support. This symbiotic relationship inspires political reform as the business class, empowered by economic success, demands transparent and responsive governance that allows them to pursue opportunities in an open market. Politicians respond and reform accordingly because tax revenue from businesses allows them to provide for, and gain the support of, the people. The growth is mutually supporting and sustaining.

Mentoring the Afghan Government

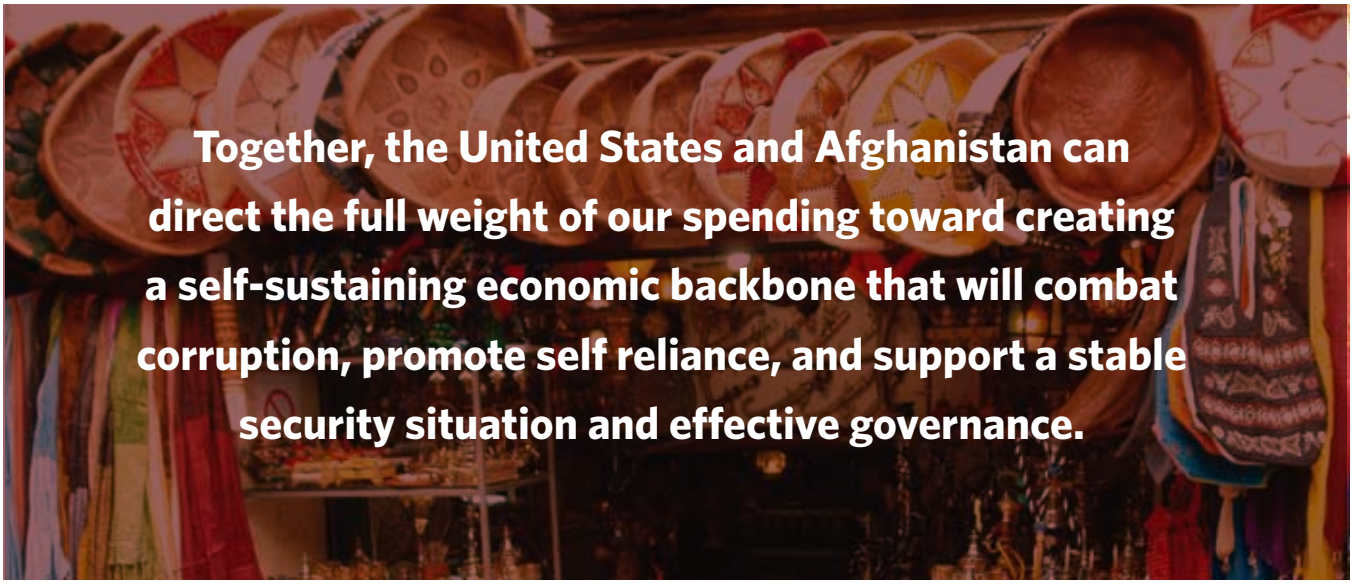
To lay the foundation for growth, the IC should continue to focus on mentoring the Afghan government to create essential rule. Establishing the rule of law emboldens entrepreneurs to start businesses and provides the legal structure to support them through enforcement of commercial laws, resolution of trade disputes, investor protection, and property registration. It also helps the government effectively capture a percentage of revenue through taxes. Our contracting activity can then complement these efforts by focusing our ready-made markets and buying power on businesses that are creating jobs, developing resources, and building capacity.

Unless our efforts are targeted and responsible, through a whole-of-government approach, we will miss the opportunity to leverage our purchasing power as a prime instrument of counterinsurgency. Even more dangerous, we risk furthering instability, fueling corruption, financing insurgents, and undermining our efforts in Afghanistan. Between 2007 and 2009, the United States obligated nearly $18 billion to over 7,000 contractors performing reconstruction and development. The Senior Contracting Official–Afghanistan (SCO-A), through 13 Regional Contracting Centers (RCC), directs an Afghanistan contracting portfolio exceeding $3.3 billion a year. The sheer volume of the U.S. Government's contracting efforts represents both an opportunity and a danger. Recognizing the impact that contracting has on Afghanistan campaign success, General David Petraeus, the International Security Assistance Force Commander, published COIN Contracting Guidance in September 2010. The current challenge in Afghanistan is to operationalize this guidance—which marks a significant shift in approach to the acquisition process—and synchronize it with the broader economic development effort.

COIN Contracting Guidance and SCO-A

The COIN Contracting Guidance directs us to view the success of our contracts not only by successfully meeting the requirements, but also by the degree to which they support the Afghan people and our campaign objectives. Together, the IC needs to identify common acquisition strategies and coordinate our actions to accomplish our broader objectives. We must exercise responsible contracting practices; better integrate contracting into intelligence, plans, and operations; consult and involve local leaders; further invest in oversight and enforcement; and better know those with whom we contract as we hire Afghans, buy Afghan products, and build Afghan capacity.

SCO-A has greatly expanded its initiatives to employ Afghan labor, buy locally manufactured products, spark small business development, and fund friends rather than foes. Contracting officers distribute micro-purchases to nascent businesses and women-owned firms to create new sources of supply and provide opportunities to an underrepresented segment of society. Using Simplified Acquisition Procedures, we occasionally choose to send requirements only to new businesses—or if circumstances warrant, sole source to help local firms enter the market. We intentionally do not send solicitations to power brokers and companies with nontransparent business practices. And using Section 886 authority, created by Congress in 2008 and implemented in the Defense Federal Acquisition Regulation Supplement, we capitalize on our largest require-



ments by directing acquisitions to companies operating in Afghanistan using Afghan labor and materials.

Partnering

Partnering with the U.S. Embassy, the U.S. Agency for International Development (USAID), Provincial Reconstruction Teams, and the Task Force for Business and Stability Operations, SCO-A holds shuras, meetings, and conferences with vendors in a local area to introduce them to U.S. Government contracting efforts, teach them about the contracting processes, and discover local companies that can—or could with mentoring—compete for U.S. Government requirements. RCC-hosted vendor days and vendor pay seminars allow local contractors to meet with regional contracting offices to hear about new opportunities, ask questions, and address payment issues.

SCO-A's innovative Afghan Business Advisor Program will add a unique—and hopefully game-changing—tool to transform local vendors' ability to understand and participate in the U.S. Government contracting process. By sending small teams—often no more than the COIN Outreach Director with an Afghan Business Advisor—into the city to find and mentor Afghan businesses, we hope to vastly increase the vendor base through hands-on training in finding U.S. Government contracting opportunities, developing responsive proposals, and seeing the work through. The Afghan Business Advisor Program also places highly educated and experienced Afghans in SCO-A headquarters and the Regional Contracting Centers. They focus on outside-the-wire tasks such as identifying nascent businesses, providing more extensive vendor training, coordinating with local government and NGOs, and resolving problems with existing vendors.

Building a Robust Business System

We are happy with our successes, but we want to do more. Emphasizing past performance by creating an online vendor performance repository is an important first step, but ideally all contracting activities in Afghanistan, including the U.S. Embassy and USAID, would be working off the same database, expanding the vendor pool while sharing information on contractor performance. Also, while we require all contractors to have an Afghanistan Investment Support Agency license, we recognize that there is much more to be gained from local government and nongovernmental business agencies. The IC needs to work with—and sometimes even develop—local chambers of commerce, Better Business Bureaus, trade unions, and business associations. This would go a long way toward building the robust business system that is so important to long-term success.

We must continue focusing our efforts on businesses operating in Afghanistan using Afghan labor and materials. It is important that we not get distracted by Afghan ownership—which can promote fraud, finagling, and unfruitful outcomes such as the Afghan businessman who lives in Dubai and sells foreign-manufactured products. Rather, we must focus on—as Congress insisted in Section 886—companies, whether foreign or domestic, that are located in Afghanistan and use Afghan labor and materials. By having the operation located in Afghanistan, important skills, factors of production, and tax revenue stay in Afghanistan. Afghans are employed, learn new skills, and develop expertise. An interesting concept that worked in Iraq and that SCO-A is experimenting with in Afghanistan is to hire an experienced international design-build construction firm that mentors Afghan subcontractors during contract execution. The model will employ local nationals, maximize use of national resources, and provide education, mentoring, and training that will give locals the independence they need to start their own businesses and succeed.

Additionally, while our efforts have been successful in locally sourcing most of our services and construction requirements, we need to accelerate the share of our commodities buying that goes into the Afghan market. Factories in Kabul make mattresses, desks, and chairs that are less expensive and

contracting efforts provide an invaluable opportunity to empower Afghan businesses and create enduring political and economic change in Afghanistan. Economic success depends upon not just individual contracting officers pursuing innovative acquisition strategies, but also a collaborative whole-of-government commitment from all stakeholders. Together we can direct the full weight of our spending toward creating a self-sustaining economic backbone that will combat corruption, promote self-reliance, and support a stable security situation and effective governance.

geographically closer than those we often buy. Bottled water factories in Herat have the capacity to meet our unquenchable thirst for safe drinking water at bases throughout Afghanistan. And perhaps most importantly, because it affects over 80 percent of the Afghan population, we need to tap into local agriculture.

Modernization of Agricultural Methods

U.S. and international forces should supplement troop food supplies with locally grown produce. Afghanistan once produced 10 percent of the world's raisins, and there exists significant potential to create an enduring and profitable pomegranate market. The 130,000 coalition troops operating in Afghanistan provide a ready-made market for food consumption that is virtually devoid of local agriculture. By increasing the portion of our buying power that is spent locally, we can fund the desperately needed modernization of agricultural methods, irrigation, crop improvement, and farm-to-market transportation that will be essential to Afghanistan's long-term stability.

Creating a Self-Sustaining Economic Backbone

SCO-A is proactively developing initiatives and procedures to implement counterinsurgency contracting guidance. Our

Fuller *is a recent graduate from Senior Service College at the Industrial College of the Armed Forces (ICAF) and holds a master's degree in National Security Studies with a focus on financial services. Prior to ICAF, Fuller worked in the Pentagon for the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics staff; and before that, as commander of the Defense Contract Management Agency-Israel. He also worked on the Department of the Army Staff and for the Stryker Brigade Combat Team Program Office. Fuller earned a B.S. degree from West Point and and M.B.A. from the University of Texas (e-mail address:* **bill.fuller@us.army.mil**). **Ficklin** *is a member of the Chairman of the Joint Chiefs of Staff Afghan Hand program and is a former squadron commander and deputy group commander. He has been assigned to the Space and Missile Systems Center, Ogden Air Logistics Center, Electronic Systems Center, Education with Industry at Northrop Grumman's Electronic Sensors and Systems Sector, and at Headquarters Air Education and Training command. He was awarded a B.S. degree in Business Management from Brigham Young University and an M.B.A. from Chapman University. He is Defense Acquisition Workforce Improvement Act certified Level III in Contracting, Level II in Financial Management, and Level I in Program Management (e-mail address:* **thomas.d.ficklin@afghan.swa.army.mil**). **Stein** *is deployed to Kabul, Afghanistan, as an assistant command judge advocate for the CENTCOM Contracting Command. At his home station, he is the chief of military justice for the 35th Fighter Wing at Misawa Air Base, Japan. He received a Juris Doctor from the William S. Boyd School of Law after completing his B.A. at the University of California, Los Angeles (e-mail address:* **christopher.t.stein@afghan.swa.army.mil** *or* **christopher.stein@misawa.af.mil**).

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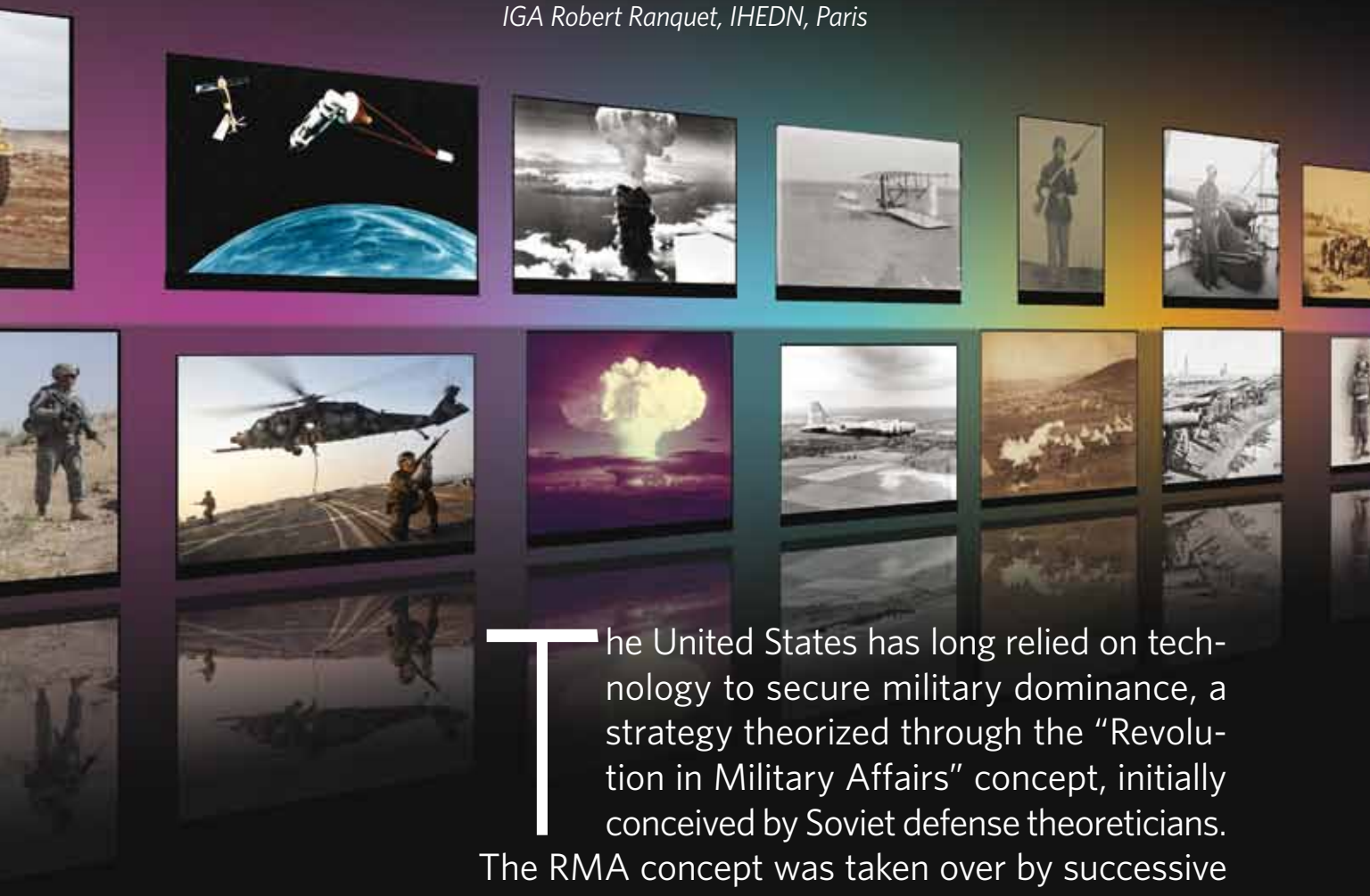
The Future of Defense Technology and the Lessons of History

IGA Robert Ranquet, IHEDN, Paris



The United States has long relied on technology to secure military dominance, a strategy theorized through the "Revolution in Military Affairs" concept, initially conceived by Soviet defense theoreticians. The RMA concept was taken over by successive U.S. administrations, with diverse avatars, but with a remarkably constant strategic purpose: to impose American rules of engagement in the field of advanced technologies and to secure for the United States an unchallenged military dominance.

This reliance on technology has often been criticized as an *over*reliance, going much further than what could be considered an optimum use of defense money. As Gen. Vincent Desportes, latest commandant of the French National War College, puts it in his recent book, *La Guerre Probable* (Paris, 2008: *Economica*),

"Our forces' efficiency in crises is now much more a question of knowing how to think, how to do, and how to be, than of equipment per se." The criticism is twofold: Excess technology is seen as diverting too many defense dollars from more essential needs and, even more seriously, as diverting the warfighters' minds from more essential "arts of war." For Desportes, "The accumulation of technological capabilities might well be, if we do not pay attention, an accumulation of political impotence."

This is not new: The French have always been reluctant to fully embrace the RMA concept. But is it possible to think of a "proper" level of technology—a level that is just sufficient rather than overwhelming? What is the right level of investment in technology to get the optimum capability outcome? Ultimately, does technology simply follow the art of war, or does it follow a more autonomous path? In short, where is defense technology heading?

Technology and the Art of War

For sure, technology by itself doesn't fully define the characteristics of military warfare, but it certainly defines rather precisely the general fighting framework. Without doubt, the art of war before the introduction of artillery was different from the art of war afterwards, just as it was different before and after the introduction of armored vehicles, before and after the introduction of aircraft—and so on. It would be a serious mistake to think that one could free oneself from these technological mutations and think only in terms of political or moral force. The Mings thought that way in 15th century China, when they renounced a then-unquestionable naval dominance to turn their priorities to the control of their vast land empire, thereby discarding a naval technology that was very advanced compared to that of the Europeans. So did Toyotomi Hideyoshi's Japan, by banishing firearms at the turn of the 17th century and reverting to a more traditional Samurai-based military organization. Those ill-inspired decisions signaled for the two countries a stepping out of the running for global or even regional dominance.

If one neglects the technological factor, the *dialectique des volontés* (the confrontation of wills, as military strategist Général André Beauffre defined strategy) will very quickly degenerate into a confrontation of anachronisms. In both examples mentioned in the previous paragraph, the negation of technology can be explained, at least in part, by a denial of its possible social implications on the make-up of the military society of the time—as, for instance, fire weapons being perceived in Japan as a threat to the traditional dominance of the Samurai.

Likewise, at the turn of the 20th century, French military authorities failed to anticipate the consequences of industrial age warfare because they hadn't understood the lessons of the 1870 war against Prussia, when industrial-age innovations, such as railways or machine guns, had changed the face of military operations. In 1911, Joseph Joffre (at the time, commander-in-chief of the French Army) dismissed aircraft as "merely toys, without any possible military value." As World War II was approaching—failing to heed the lessons of the past—the French military authorities were blind to the possibilities offered by the new mechanized armored vehicles; and their blindness contributed vastly to the French rout in 1940, when Rommel's armored units penetrated the French lines.

Technology in the New Strategic Landscape

No question, technology matters. Take the Cold War—the ultimate technological war. The Cold War was never fought on the European traditional battlefield, though it was fought sporadically by "proxies" in the rest of the world; but it raged for approximately 50 years on the technological battlefield. The fight was about mastering nuclear-related technologies: the atom bomb, missiles, navigation systems, etc. Technology is the new essential art of war.

Today, we are witnessing a new strategic landscape taking shape. Classical geostrategic players, like a post-Maoist China or a neo-czarist Russia, are rising or being reborn. This global strategic landscape, blurred to our eyes for a while after the fall of the Soviet Union, is now assuming a shape that would have looked familiar to our great-grandfathers, who fought counter-insurrection wars from the Balkans to Persia.

What will be tomorrow's conflicts in this "new" landscape? A 2008 French white paper on defense and national security attempted to list the main probable types of conflicts. One thing is certain: At the upper end of the spectrum—the end that encompasses large, long-term investments to face these potential conflicts—the United States will, for the foreseeable future, set the pace.

Major conflicts in the future will be largely defined by technology—not exclusively, of course, but technology will play a defining role. We will do well not to forget the lesson we learned from the Asian emperors: It is not the ruler, from his exalted position in his palace, who controls the facts that will drive future conflicts; it's the technology.

The Pace of Technology

A fundamental question for those in charge of preparing their country's armaments for the long term is which technologies to invest in, and there is a general confusion within the defense community about this question. With technologies so numerous, so diverse, and so changing, any attempt at long-term preparation (say 20 to 30 years out) might seem to be pointless.

I would like to dispel what I think is nothing more than a myth: what many analysts allege to be a general and exponential acceleration of the influx of new defense technologies. The myth doesn't stand up to serious scrutiny. Anyone who looks in depth into the evolution of defense technology

MAJOR GENERAL (ARMAMENT CORPS) ROBERT RANQUET

Major General Robert Ranquet was commissioned in 1974 as a lieutenant in the Armament Corps of the Defense Procurement Agency (DGA) of the French Ministry of Defense. After completing master's degrees in naval architecture and nuclear engineering, he served as manager of the nuclear propulsion department of the French navy's primary shipbuilding unit, the Brest division of the Directorate for Naval Construction (DCN), where he was in charge of maintenance for "Le Redoutable" class SSBN propulsion systems.

In 1984 he joined DCN Indret as the head of the Material Research Center. He moved in 1989 from this position to serve as head of the nuclear propulsion department, in charge of development and design of naval nuclear reactors. In this position, he managed the development of nuclear plants for the "Le Triomphant" class SSBN and the "Charles de Gaulle" aircraft carrier. In 1992 he was promoted to deputy director of DCN Indret, in charge of research and development activities. In this position, he initiated numerous international partnerships with British and U.S. firms, within the framework of the "Horizon Frigate" European project.

In 1994 Ranquet was assigned as a special assistant to the director for Atlantic/Europe cooperation at the International Affairs Directorate of DGA Paris and in 1995 was an exchange student at the Industrial College of the Armed Forces at Fort Lesley J. McNair in Washington, D.C., before joining the French Embassy as deputy armament attaché, becoming armament attaché in October 1996. In this position, he was the personal representative of the head of the French DGA to the United States.

Upon his return to France in 1998, Ranquet was assigned for two years to the new Center for Higher Armaments Studies as the head of the Strategic Research Department and the executive director of the new Defense Science Council, which he helped to create. In this position, he initiated many new projects, such as the Acquisition Strategy Laboratory.

He joined the Directorate for Test and Evaluation Centers in 2000 as the director of the Arcueil Research Center and in the following year was promoted to the rank of brigadier general in the Armament Corps.

In 2003 Ranquet was appointed as deputy director for strategic affairs (policy). In this position, he served as the French negotiator in the creation of the European Defense Agency and as the French representative to the NATO senior political executive group on missile defense. He was also in charge of many international and strategic dossiers, including nuclear deterrence policy and the *2008 White Book on Defense and National Security*. He was promoted to the rank of major general in 2005.

In 2008 he was appointed as special assistant to the General Council for Armament, the senior acquisition and technology advisory board to the prime minister.

Ranquet in 2010 was appointed to his current position, deputy director of the Institute for Advanced Studies of National Defense—the highest French academic institution for defense and security, under the prime minister's office. Ranquet's military and civilian education includes: Ecole Polytechnique, Paris; the National Higher School of Advanced Technology, Paris; the National Institute of Nuclear Science and Technology, Saclay; and the Industrial College of the Armed Forces, Washington D.C.

His awards include the French Legion of Honor and the National Order of Merit.

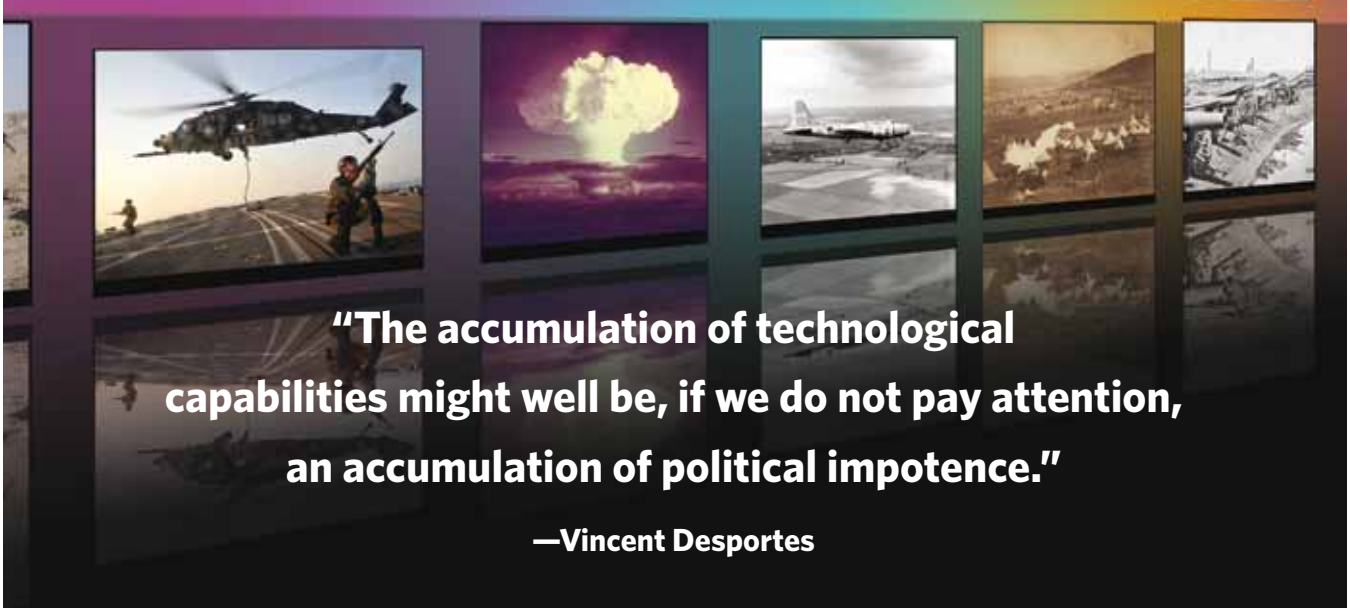
over just the last 150 years (leaving aside the more remote past) will see waves of technology development at a pace that is no less than the pace we witness today. Think of the megawave of the Industrial Age technologies (steel, mechanics, and chemicals) at the end of the 19th century; then the waves of electricity, motor vehicles, aircraft, radar, electronics, nuclear energy, laser technology, and so on—wave upon wave of technological advancement without interruption, at a speed that we tend to discount today.

Let's consider one simple example. The Wright brothers made the first powered flights in 1903; the first experiment of flying an aircraft from a ship took place in 1910; and the first operational raid by aircraft launched from an aircraft carrier happened in 1918 (the Tondern attack by *HMS Furious*). It took no more than 15 years to bring about a major technological and operational revolution. In comparison, think of the time between the first tentative drafts of the Dassault Rafale (the latest generation French jet fighter aircraft) in 1977 to its introduction into service in 2000. The same could apply to nearly all major modern combat systems.

What we have been witnessing for a couple of decades is not a major, ongoing technological revolution—it is simply the massive influx on the battlefield of information and communication technologies that were invented in the 1940s to 1950s: the transistor by William Shockley in 1947 and the first general-purpose computer (the ENIAC) in 1946.

What of the Future?

One technological breakthrough alone doesn't make a military revolution. It takes the convergence of several breakthroughs to create a decisive step forward. For instance, one could consider that the network-centric warfare that appeared (according to some analysts) during the first Yugoslav War (1991) and according to others, during the second Gulf War (2003), is a remote consequence of several older breakthroughs: the radio (1909), computers (1946), and satellites (1957). It is the encounter of various factors, usually scientific and technological ones first, which make new things possible; and only afterwards, military and political factors, which leverage new possibilities offered by technology and open the way for major breakthroughs.



"The accumulation of technological capabilities might well be, if we do not pay attention, an accumulation of political impotence."

—Vincent Desportes

What are the technological breakthroughs of the future likely to be? That's a good question. Attempts to predict technology breakthroughs have been disappointing. Many experts have been consulted, and many white papers and other studies of future trends have been written. The results have been indecisive. We repeatedly hear that the next field in which we will see major breakthroughs will be the intersection of nanotechnologies and biotechnologies in genetics. But we have been hearing that for years now, and we are still waiting. That shouldn't come as a complete surprise to us: The time interval between a scientific discovery and an actual technology coming to the battlefield is remarkably constant—about 25 years.

It is very possible that nanotechnologies and biotechnologies will bring extraordinary breakthroughs for defense. But even if it were to happen tomorrow, it would be after an extremely long latency period: Nanotechnologies officially appeared with the tunnel microscope in 1981; and as for the bio/gene technologies, DNA was discovered in 1944.

A Different Danger

Let us go one step further. It is possible that, far from living in a time of continuously accelerating defense technology evolution, we actually live in a time of relative drying up of those technologies. Whether this is true is no minor question; it implies major consequences for countries, like the United States and many other western nations, that base their grand strategy on maintaining their technological edge. A drying up of technology would rapidly translate into a global leveling of many nations to a more or less equalized technological level, a situation in which there would no longer be any comparative advantage for any nation. We would find ourselves in a situation where not only would there be no new technologies appearing (at least, none comparable to the major innovations of the recent past), but technologically advanced nations would also have to spend more and more to obtain only marginal military capability advantages. At the same time, on the other end of the spectrum, emerging actors could increase their capabilities with very limited investment.

Such is the situation today in Iraq and Afghanistan with improvised explosive devices (IEDs). With simple equipment and crude technologies (mobile phones and basic explosives), the insurgents are able to establish enough of a level playing field to gain some maneuvering room against vastly better equipped military forces. According to some sources, the United States has already spent more on the fight against IEDs in Iraq and Afghanistan than on its involvement in the Manhattan Project during World War II. The outcome has obviously not been in the right proportion.

In such a situation, the only way to retain superiority would be through quantity, just as the United States outran Germany during World War II in a quantitative armaments race. But can the United States or medium-sized European powers like the United Kingdom or France outrun a strong competitor, such as, for example, China? And if they can outrun it today, how long will they be able to continue to do so? And at what cost, in a world where defense technology would be more or less equally available to all?

So where is defense technology going? No one can say for sure. Will defense technology in the future continue to be the differentiator between those who master the latest innovations faster than the others? Or will it have, on the contrary, an effect of global equalization? If the second hypothesis prevails, then one can foresee that war will be mostly about human will, rather than about technology. But can we risk our future on that hypothesis? Can we risk lowering our guard on defense research and technology?

If we heed the lessons of history, the answer is an unequivocal "no." The march of technology has continued unabated, and those who have failed to include it in their plans have done so at their own peril and have frequently contributed to their own defeat.

Ranquet *welcomes comments and questions and can be contacted at* **robert.ranquet@ihedn.fr.**

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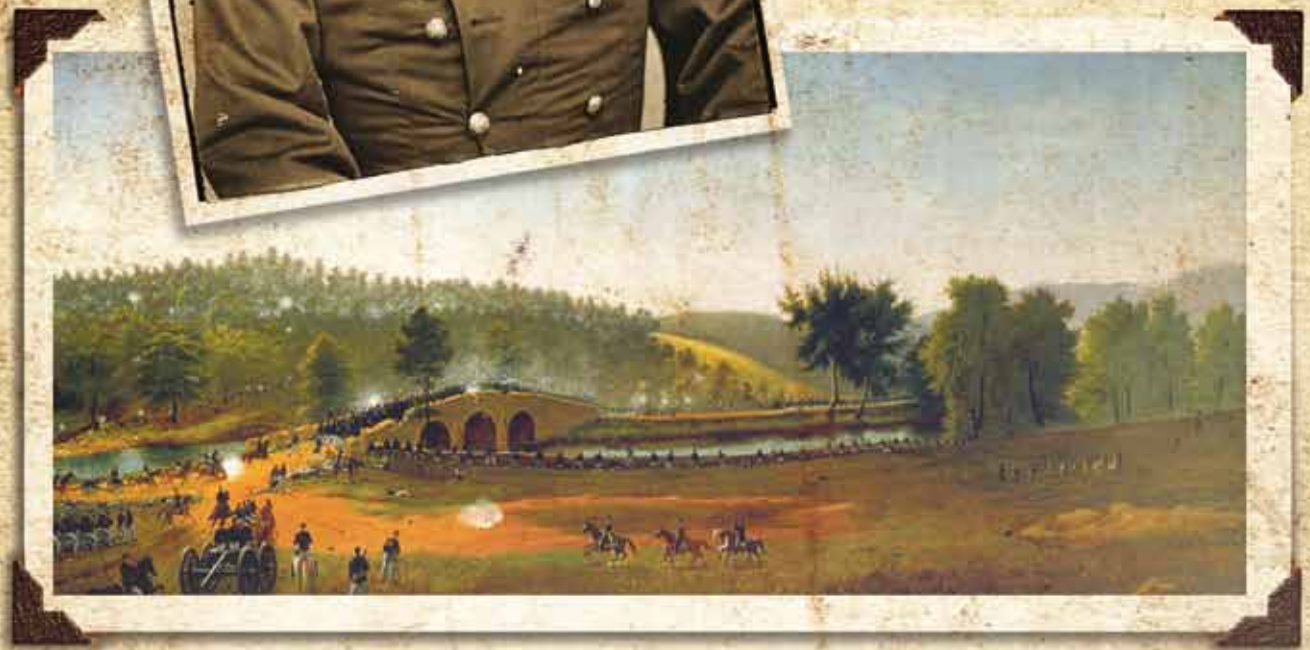
Burnside's Bridge and Lessons Learned for Program Management

Joe Moschler ■ *Jim Weitzner*



"For all sad words of tongue and pen, the saddest are these, 'It might have been'." This well-known line from the poem "Maud Muller" by John Greenleaf Whittier expresses the sentiment of each of us at some point in our lives. "What might have been," had we just taken a risk or made a different decision when an opportunity presented itself. Although we can-

not change the past, we can learn from the lessons of others. The challenge then is seeing how these lessons apply to our current situation.

Instances abound where individuals have become so focused on implementing a specific tactic, they forget the overarching strategy; or they become so enthralled with the elegance of a particular strategy, they lose the opportunity to achieve the ultimate objective. The January-February 2007 edition of the *Defense AT&L* included an article titled "Learning Program Management on the Battlefield at Gettysburg," by Dr. Owen Gadeken, who used the "learning from experience" concept to apply the lessons learned from the Battle of Gettysburg to program management. Similarly, the intent of this article is to provide some lessons learned from another seminal battle during the American Civil War. In this case, we recount portions of the Battle of Antietam and attempt to show how these lessons apply to current-day acquisition.

Factors Contributing to the Failure to Achieve a Decisive Outcome at Antietam

Some historians feel that the Union lost a golden opportunity at Antietam to bring the Civil War to a speedy conclusion with an overwhelming Union victory; after all, the Union Army had the advantage of having the Confederates' battle plans and a vast superiority in numbers. However, events conspired to turn the battle results into essentially a draw. Although hindsight is 20/20, we cannot accurately predict all of the impacts of a changed input; therefore, instead of dwelling on "what might have been," we will focus on what we can learn from the events that did transpire during the battle, particularly during the phase known as "Burnside's Bridge."

In September 1862, the Confederate Army of Northern Virginia, under the command of General Robert E. Lee, went on the offensive and invaded Maryland, advancing from the western part of the state eastward toward Washington, D.C. The Union Army of the Potomac, under General George B. McClellan, having the advantage of knowing the Confederate Army's plans, was brought into a position to be able to block the Confederate advance near the town of Sharpsburg, Md., on Sept. 15, 1862. In the interim, before the ensuing battle on Sept. 17, the Confederate Army took advantage of the time to develop a defensive position, in part along Antietam Creek.

McClellan's battle strategy called for a coordinated attack on the morning of Sept. 17 along the Confederate right and left flanks, which, if successful, would cause a depletion of the Confederate center due to reinforcement of the flanks, opening the way for a frontal push designed to completely engulf the Confederate forces. This strategy was not implemented, however, due in part to a failure to adequately communicate this strategy and also because of conflicting orders issued to McClellan's subordinate generals. His subordinate commanders only received orders for the forces under their command, not the general orders describing the entire battle plan. The rolling terrain in the battlefield made it difficult for his commanders to monitor events outside their areas of operations. Furthermore, the location of McClellan's headquarters—more than a mile to the rear of the battle—limited his ability to exercise control of his separate corps.

Thus, instead of being fought as a coordinated Union attack, the Battle of Antietam was fought as three separate phases, progressing geographically as well as chronologically, from the Confederate left to the Confederate right. In the morning, the battle was waged on the Confederate left in what is known as the Battle of the Cornfield. By midday, the focus had shifted to the Confederate center, also known as the Battle of the Sunken Road, or after the battle, Bloody Lane. During the afternoon, the battle was primarily waged along the Confederate right flank at and around a location now known as Burnside's Bridge.

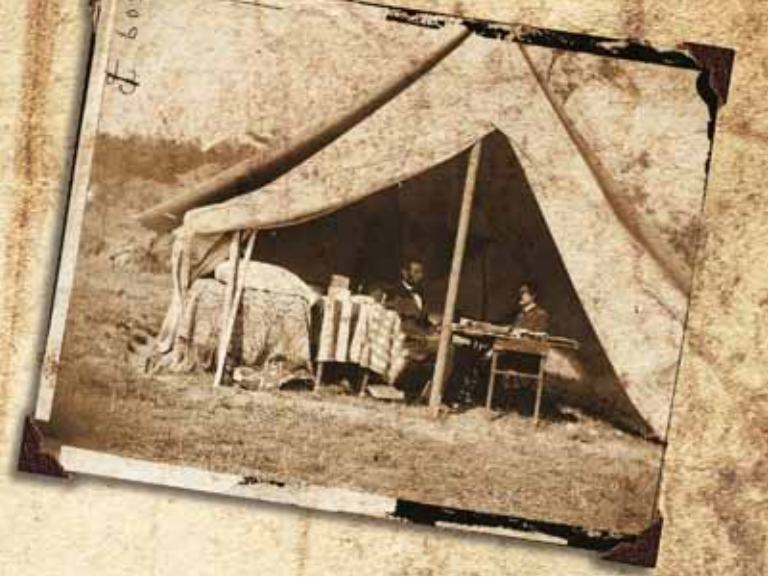
General Ambrose Burnside's orders were to cross Rohrbach's Bridge (now Burnside's Bridge) over Antietam Creek and flank the Confederate right, which had assumed a defensive position on a bluff overlooking Antietam Creek and the bridge. It took several advances with heavy casualties in an attempt to cross the bridge before a local ford was found and the creek was successfully crossed, all while under fire. In all, between 6 and 7 hours were spent in getting the Union left into a flanking position. This flanking maneuver was proving successful and driving the Confederate right into a precarious position when Confederate reinforcements arrived from Harper's Ferry and relieved the pressure. By the end of the day, the two armies remained essentially where they were when the day began, with a combined killed, wounded, and missing of about 25,000 men. On Sept. 18, both armies "licked their wounds" and, that night, the Confederate Army (Army of Northern Virginia) retreated back across the Potomac River with no pursuit by the Union forces.

What caused the 6- to 7-hour delay in getting the flanking maneuver on the Confederate right into place?

- It appears that Burnside became fixated with crossing the bridge as opposed to crossing the creek.
- A lack of adequate reconnaissance and intelligence resulted in failure to locate two nearby fords, which ultimately provided a viable option to crossing the bridge. This resulted in decisions being made without including valuable information—information that should have been made available—in Burnside's battle strategy.
- A lack of a clear understanding by McClellan's subordinates of the bigger picture caused the planned strategy not to be implemented.
- The lack of having a common vision for the battle was further complicated by a lack of effective and timely communication of orders.

Unlike World War II, in which initiative by GIs was often credited with helping turn the tide of battle, during the Civil War, battlefield initiative by subordinate officers in the Union Army was actively discouraged. This rigid hierarchical chain of command prevented initiative by lower-tiered officers. Because of

When the focus on the process becomes the priority of the organization, then the mission or program objective will suffer.



the close proximity of Burnside to his brigade commanders, most of his brigadier generals were hesitant to take initiative or make command decisions without direct authorization. This effectively resulted in his brigade commanders' role being reduced to becoming conduits of communications and commands rather than dynamic decision makers adjusting to the ebb and flow of an ongoing battle.

Antietam Mistakes Repeated in Acquisition Programs

Based on our analysis of these events during the Battle of Antietam, what lessons can we learn and, in turn, apply to program management today? Are they relevant to program management? Let us look at each factor individually and how it may apply to a program today.

Don't focus on a current issue to the detriment of the overall program.

Similar to what occurred with Burnside and his dogmatic insistence on taking the bridge, program managers can become fixated and lose sight of what's important in their programs. This often is an insidious process, and program leadership may be unaware it is taking place. However, this is not always the case. For instance, a program manager may decide to reduce the program's training budget or the number of spares purchased because of an unexpected budget cut. More often than not, such actions will have far-reaching consequences that negatively affect the program. By focusing on the immediate need, the program manager may make a short-sighted decision leading to future problems. Take time to adequately explore the future consequences of decisions and their impact on the overall program goals. The authors concede that this may be a best-case scenario and that budget realities may dictate cuts with the knowledge of the downstream negative effects.

Another way that over-focusing may be manifested is when an organization becomes so engrossed in processes and procedures that the overall program goals are no longer deemed important. The Department of Defense has embraced and implemented many management techniques over the years to improve efficiencies and conserve resources. Total Quality Management and Leadership, Lean Six Sigma, Management by Objectives, and ISO 9000/9001 are examples of programs implemented with varying levels of success. The point of this article is not to discuss the merits and pitfalls of these methodologies but to simply point out that how they are applied and used in an organization is critical. When the focus on the process becomes the priority of the organization, then the mission or program objective will suffer. The following example from a well-known National Aeronautics and Space Administration (NASA) program demonstrates how this may occur. Admittedly, this is not a Department of Defense program, but it serves as a relevant illustration for the purposes of this article.

On Feb. 1, 2003, the space shuttle *Columbia* was lost during re-entry into the earth's atmosphere. The Columbia Accident Investigation Board (CAIB) was convened to determine the cause of the disaster and document the lessons learned. One finding in the report was that over-reliance on management and quality programs played a role. For example, the NASA and United Space Alliance employees were mandated to use ISO-9000/9001 sampling processes to verify that each step of the maintenance processes was followed during space shuttle operations. Unfortunately, this approach assumed that ensuring the checklist steps were completed would, in turn, ensure a safe and quality product. As quoted in the CAIB report, "While the ISO-9000/9001 quality system is appropriate for many processes and organizations, it was not for the highly complex space shuttle operation, which required a more "hands on" approach."

Communicate the vision and stress what is important.

The failure of McClellan to adequately communicate his overall battle strategy to his generals at the Battle of Antietam clearly impacted the battle's outcome. In acquisition, program leadership must be clear in stating their vision. They must emphasize what is important and not only say it, but make decisions to support their words. If leaders provide lip service to safety and quality but emphasize schedule and staying on budget, the workers in the organization will quickly realize what is important.

Using another NASA example to illustrate, the Apollo space program suffered a tragic accident in early 1967. While the Apollo 1 spacecraft was undergoing preparations for the first manned flight, astronauts Gus Grissom, Ed White, and Roger Chaffee were killed when a fire erupted in the cabin of the spacecraft. What led to this catastrophic failure? Many factors were blamed, but a significant one was the pressure to meet the launch schedule. NASA was pressing to launch a manned flight, despite many developmental problems and test failures. As author John Barbour writes in *Footprints on the Moon,* the agency started taking shortcuts and eliminating tests to preserve its schedule. The focus had become the "launch schedule" instead of developing and deploying a safe and quality-built space vehicle to reach the moon. Beyond the immeasurable cost of three lives, NASA spent 2 years and millions of additional dollars to recover and get back on course for a moon landing using a totally redesigned Apollo capsule.

Acquire the information you need to make fact-based decisions.

Program managers are usually not required to make decisions amidst of life-and-death events and thus should gather as much intelligence and data as possible to make a decision. Burnside's failure to reconnoiter the area around the bridge over Antietam Creek for other suitable crossings drove him to focus on the bridge as the primary route across the creek. He did not take advantage of the possible options available to him. One technique or option for the program managers of today is to seek help from outside the program. This additional data may provide insights to assist in decision making. Don't be afraid to ask for independent reviews to obtain objective feedback on your program. Seeking out critical looks at your program may sound like you are asking for trouble, but an assessment of your program by an objective, unbiased party is invaluable.

Such a review may cause delays to your program. But in some cases, it may help make the program successful. During the year 2000, there were two deadly crashes of the V-22 Tiltrotor Osprey as the program was completing initial operational testing and preparing for its Milestone III decision to enter full-rate production. In the ensuing months, the aircraft was grounded, and a "Blue Ribbon Panel" was convened to take a critical look at the program. The panel was made up of a diverse group of experts from industry, academia, the military services, and NASA to help determine the way forward for the program. A comprehensive review of the program resulted in several redesigns to be implemented along with a vastly expanded flight test effort. The aircraft completed its operational test in 2005 and is now in operational service with the Marine Corps and the Air Force. Although the program had its growing pains, the V-22 is fielded and has served successfully in Iraq and Afghanistan, as well as flown humanitarian missions in Haiti. The V-22 example is a case wherein an "independent review" provided beneficial outcomes to the program and contributed to its success. Although this action was reactive rather than proactive, gathering data to make successful decisions is essential both on the battlefield and in program management.

The old adage of leadership—Communicate, Communicate, Communicate—applies.

There is no such thing as too much communication in a project. Open, frequent communication is essential to your program. This means vertical communication (up and down the chain), horizontal communication (within the Integrated Product Teams [IPTs] or teams within the organization), and external communication (to agencies outside the organization). This lesson learned was evident from the Battle of Antietam. The limited communication of McClellan's battle plans to his commanding generals before and during the battle hampered the Union's efforts by disrupting the planned coordinated attacks on Lee's forces.

Empower your workforce to make decisions and encourage innovation.

Be open to new ideas and encourage creativity in your organization. Respect their judgment and ideas for problem solving. This is something that leadership must champion and "walk the talk." At Antietam, Burnside's close physical proximity to his brigade commanders on the battlefield stifled their willingness to take the initiative on the battlefield and be leaders. But more importantly, his refusal to relinquish control and give them authority to act independently diminished his and their effectiveness on the battlefield. The lack of empowerment to his commanders exacerbated the slow movement of the troops across the creek and prevented his forces from being a significant factor against the Confederate Army.

Summary

Hopefully, this article has provided some insights from past human experiences and events that can be applied to current challenges in acquisition. Otherwise, as the well-known quote by George Santayana states, "Those who cannot remember the past are condemned to repeat it." We can all learn from the mistakes of others, as well as our own. If indeed we study these lessons and apply them appropriately, we will have a distinct advantage in tackling the challenges that are sure to lie ahead. We hope this article has provided some simple guidelines to employ as a way to avoid some common pitfalls in defense acquisition (and life in general).

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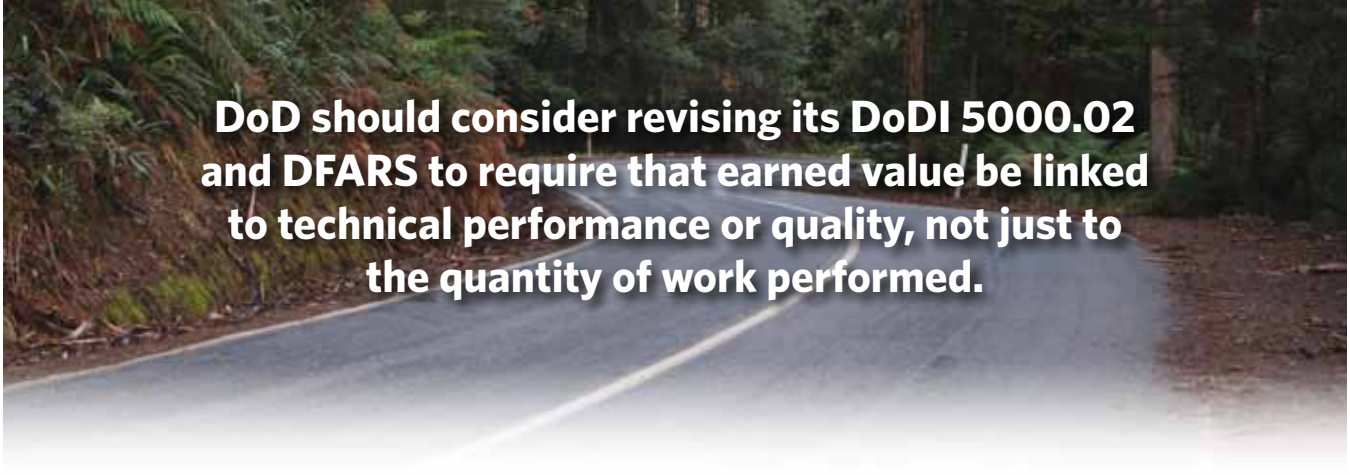
Path to Earned Value Management Acquisition Reform

Paul Solomon

In January 2011, President Obama signed legislation that includes a provision for Department of Defense (DoD) to review its acquisition guidance, including Department of Defense Instruction (DoDI) 5000.02, to consider whether measures of quality and technical performance should be included in any Earned Value Management System (EVMS). DoD must also report to Congress any changes to be made to that guidance. This is just a first step on a path to EVM acquisition reform that should cross federal and DoD regulations and lead to accurate contract performance reports and lower acquisition costs.



Congressional Action

The legislative provisions are in the Ike Skelton National Defense Authorization Act for FY 2011 (NDAA). They were discussed in the *Defense AT&L* article, "EVM Acquisition Reform" (November-December 2010). That article can be downloaded from http://pb-ev.com/advanced.aspx along with three previous articles.

The key messages of those articles were considered by the House and Senate Armed Services Committees. First, EVMS does not serve its intended purpose. Second, if you are measuring the wrong things or not measuring the right way, then EVM may be more costly to administer and may provide less management value. Finally, EVM data will be reliable and accurate only if the right base measures of technical performance are selected and progress is objectively assessed.

The remainder of this article includes four topics. First, DoD acquisition guidance is reviewed, with regard to EVM and technical performance. Second, because contractors are not required to link EV to technical performance or quality by the Federal Acquisition Regulation (FAR), the Defense Federal Acquisition Regulation Supplement (DFARS), and Office of Management and Budget (OMB) policy, the author recommends specific changes to close the quality gap. Third, this article contains a discussion of roadblocks to DoD in implementing its own policy requirements and legislative requirements without EVM acquisition reform. Finally, the author asserts that industry compliance with some EVMS guidelines is non-value-added; it adds to costs, but does not add to quality of product or timeliness of delivery.

DoD Acquisition Guidance

The *Defense Acquisition Guidebook* (DAG) and several other DoD guides provide consistent guidance to integrate the Systems Engineering Plan (SEP) with the Integrated Master Plan, Integrated Master Schedule, Technical Performance Measures (TPM), and EVM. The most explicit guidance is in the *Defense Acquisition Program Support Methodology* (DAPS).

Per DAPS, TPMs compare actual vs. planned technical development and design to report the degree to which system requirements are met in terms of performance, cost, and schedule. TPMs are used to determine whether percentile completion metrics accurately reflect quantitative technical quality toward meeting Key Performance Parameters and Critical Performance Parameters.

A set of matrices that show DoD guidance regarding technical performance, integrated planning, and pertinent systems engineering objectives is provided at http://pb-ev.com/DOD-table.aspx. DAPS references and the relationships between the technical baselines, technical reviews, and TPMs is provided at http://pb-ev.com/TPM.aspx.

Ironically, DoDI 5000.02, which is specified in NDAA, provides no guidance to link measures of quality and technical performance with EVM. In DoDI 5000.02, the term "technical performance" is only found once in the enclosure on Test and Evaluation. The term "quality" is found once in the section on Acquisition of Services and once in the section on Habitability.

Unfortunately, the guidance cited in the matrices and DAPS is applicable to DoD acquisition organizations and not to contractors.

Recommended Changes to Policy and Regulations

Although government policies and regulations require that contractors be compliant with the EVMS guidelines, no contractual requirements mandate contractors to integrate technical performance with EVM. These gaps impair the management value, validity, and accuracy of EVM reports. Consequently, DoD should consider revising its DoDI 5000.02 and DFARS to require that earned value be linked to technical performance or quality, not just to the quantity of work performed. The quality objectives should be defined in the technical baseline and linked with the Performance Measurement Baseline.

The EVMS sections of DFARS should be changed to add "product scope" to work scope, and to require that the use of TPMs to measure progress be mandatory, not optional. Specific changes are provided at http://pb-ev.com/OMB-policyFARDFARS.aspx, Table 1. The recommended changes are derived from two project management and engineering

standards that should be referenced in DFARS in addition to the EVMS standard. Not only should DoD revise the DFARS as described previously, but OMB policy should be revised as shown in Table 2, also at http://pb-ev.com/OMBpolicyFARDFARS.aspx.

Roadblocks to Implementing DoD Policy and NDAA Requirements

The latest amendment to DoDI 5000.02 requires that the cost, schedule, and performance of the program be evaluated relative to current metrics, performance requirements, and baseline parameters. However, this cannot be accomplished without contractor-supplied metrics. Also, if DoD reports to Congress that measures of quality and technical performance should be included in any EVMS, then changes will be necessary to DFARS, not just to DoD guidance. Table 3, which includes the DoD and legislative requirements and describes the roadblocks to implementing those requirements, is also provided at http://pb-ev.com/OMBpolicyFARDFARS.aspx.

Reduce Non-Value-Added Overhead Imposed on Industry

The November 2010 Office of the Under Secretary of Defense for Acquisition, Technology and Logistics "Implementation Directive for Better Buying Power–Obtaining Greater Efficiency and Productivity in Defense Spending," calls for a reduction in non-value-added overhead imposed on industry. Non-value-added tasks add to costs, but do not add to quality of product or timeliness of delivery. Table 3, at http://pb-ev.com/OMBpolicyFARDFARS.aspx contains an excerpt from the directive.

In my opinion, industry compliance with some of the 32 EVMS guidelines is non-value-added, as are the auditing and compliance reviews conducted by DoD personnel. Table 3 (http://pb-ev.com/OMBpolicyFARDFARS.aspx) also includes recommendations to identify and remove non-value-added EVMS guidelines and to increase management focus on the progress toward meeting the requirements of the technical baseline.

Restatement of Need for EVM Acquisition Reform

As stated in the *Defense AT&L* article mentioned earlier, the acquisition reforms discussed in this article are needed for EVM to serve its intended purpose. A path to EVM and acquisition reform is provided herein. Implementation of the reforms described in this article can enable EVM to integrate a program's technical, schedule, and cost objectives. Implementation can also lead to greater efficiency and productivity in defense spending.

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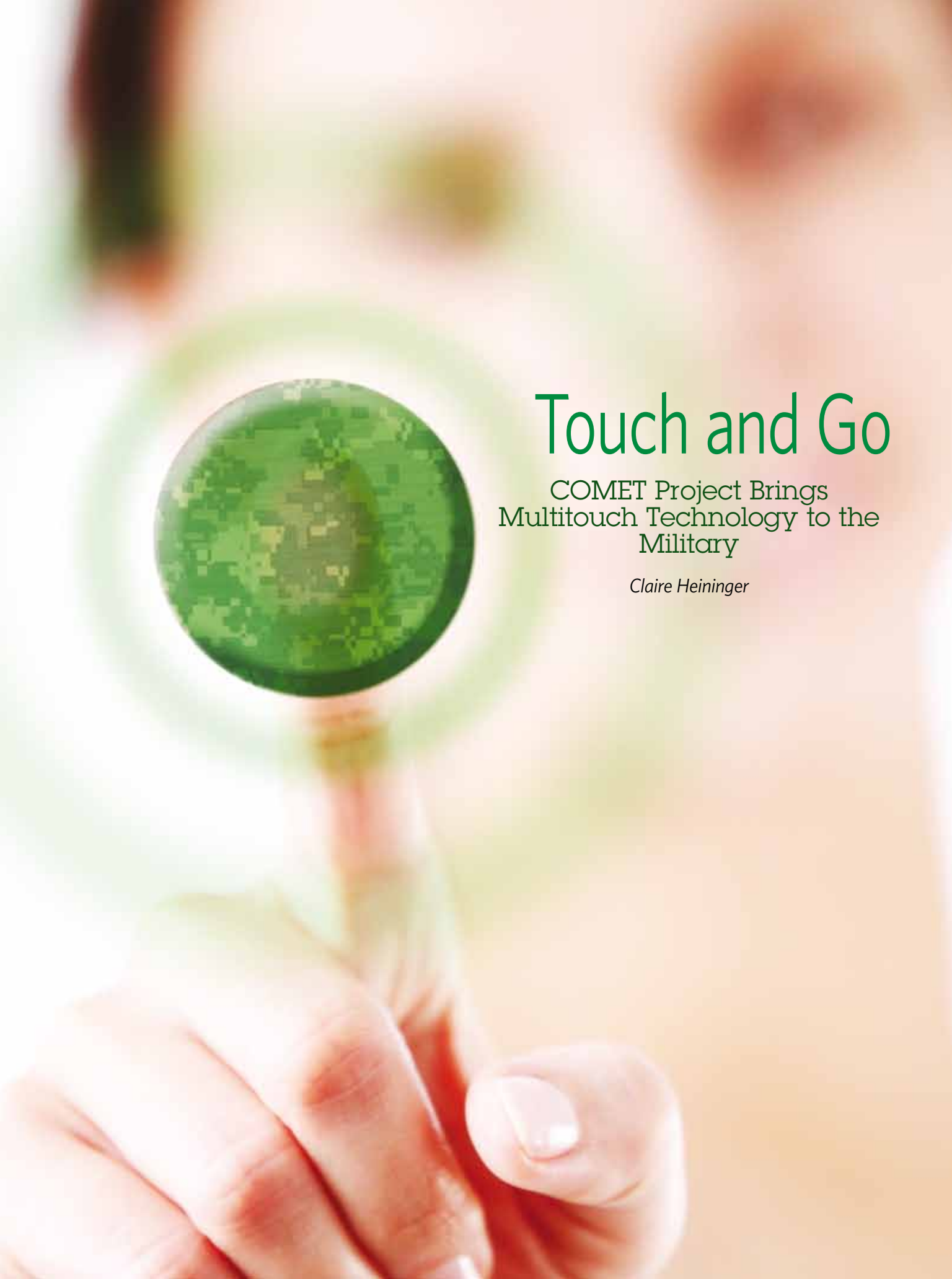


Touch and Go

COMET Project Brings Multitouch Technology to the Military

Claire Heininger

They started with the makings of a high school science project: plywood, paint, butcher paper, slide projector, handheld camera, and duct tape. They worked nights and weekends, building a prototype that wasn't yet feasible in the commercial world: a large, touch-screen table that military commanders could use to collaboratively plan and analyze their battles.

"This was something where my wife went out and picked the color of the paint because it looked like a Jeep," said Tim Chase, a technical advisor to the project. "But the results were stunning."

It was enough to impress soldiers during experiments at Fort Dix, N.J., and to engage industry giant Microsoft® in a rare joint research agreement. Now, just 2 years later, the same team of engineers and developers are on the cutting edge of multitouch technology for the armed forces.

Known as Command and Control Multitouch Enabled Technology (COMET), the effort aims to make face-to-face collaboration more productive and interactive. Unlike the paper maps, acetate layers, and sand tables currently used for wargaming and other group activities, COMET can record and save information for future analysis and after-action reviews. It can also synch data feeds and changes in real time with other military systems, enhancing existing capabilities rather than replacing them.

The Electronic Sand Table

COMET provides all the advantages of a digital environment but does not sacrifice the intuitive properties of hands-on tools. The software takes on "real-world" properties, allowing users to pan across or zoom in on a map by "grabbing" and manipulating the screen—just as they would with any of the touch-enabled smartphones that dominate today's marketplace. Providing a familiar user interface could cut training time significantly for current and future warfighters, said Nicholas Palmer, one of the architects of the COMET project.

"Warfighters are very in touch with technology and expect to have those capability sets available to them, whether they're in garrison or out in the field," Palmer said. "The warfighter will also expect the tools to behave in the way they think the tools should behave."

The result is that COMET offers a powerful collaborative environment that invites users to grab and move things around and discuss data, pictures, and video with each other rather than sitting at a separate machine or looking over the shoulder of another user, Palmer said.

The "electronic sand table," however, is just one piece of the COMET vision. Ultimately, COMET is seeking to create a government-owned, open-source software developers kit that will provide a framework for applications to run on multitouch platforms of all sizes—from a tabletop to handheld devices.

"I see enormous potential for the military to leverage touch-, gesture-, and speech-based technologies," said Michael Anthony, chief of the Mission Command Division for the U.S. Army Research, Development and Engineering Command Communications-Electronics Research, Development and Engineering Center (CERDEC) Command & Control Directorate (C2D), which oversees the COMET project. "Our research has turned towards maturing, militarizing, and adding military applications to facilitate the use of this technology as a force multiplier."

Capt. Ramon W. Almodovar, commander Alpha Co. EXFOR, First Battalion, 29 Infantry Regiment, Fort Benning, Ga., uses a COMET prototype to plan a mission during the C4ISR On-The-Move Event in 2008.

U.S. Army photo

COMET's success has sparked partnerships with Army organizations such as the Intelligence Center of Excellence; the Tank Automotive Research, Development and Engineering Center; the Armament Research, Development and Engineering Center; and the Training and Doctrine Command. The COMET team has also conducted experiments to bring existing applications like Tactical Ground Reporting (TIGR) and Command Post of the Future (CPOF) capabilities into a multitouch environment. TIGR is a collaborative software tool that uses a "Google Earth"-like interface, pictures, and text to provide a searchable database of unit activities. CPOF is the primary common operational picture viewer used by the Army in all theaters, providing a wide array of real-time situational awareness and collaboration tools.

Multitouch technology could also help overcome barriers to joint collaboration. For example, the COMET group created framework extensions for a network operations (NetOps) "team workbench" that would allow personnel from different branches to dynamically manage and allocate bandwidth and network resources despite having trained on different systems, Chase said. In collaboration with the CERDEC Space and Terrestrial Communications Directorate, C2D recently demonstrated the concept to representatives from the Joint Readiness Training Center, whose enthusiasm for the technology has sparked further development in the coming year.

"Now we're looking at how you can display information such that it makes sense to people who may not be super-expert in the NetOps field, so that they can better understand what's happening with their networks," Chase said. "A table looks like it's a really good way to provide that information."

Anchoring all of the initiatives is the Multitouch Mission Command Working Group, spearheaded by Palmer, and that includes more than two dozen organizations from government, industry, and academia. One recent meeting at Aberdeen Proving Ground, Md., was so crowded that some attendees had to be turned away to prevent a fire hazard.

"If that doesn't tell you how relevant and important this technology is, then I don't know what does," said Ron Szymanski, the C2D chief architect for software and technology. COMET is one of the technologies and capabilities under development as part of the Collaborative Battlespace Reasoning and Awareness Army Technology Objective.

The Future of Face-to-Face

With rapid changes in communications technology and the nature of battle, the Department of Defense is increasingly focused on networking warfighters spread across the globe. Still, some situations demand face-to-face collaboration—and the existing technology was not up to par.

Wargaming was still conducted with paper maps and Post-it® notes. Storyboards were still printed out and e-mailed back and forth.

"No matter how many technological advancements we've already made or will make, nothing can substitute for face-to-face collaboration. It is the most efficient and effective means of information sharing," Szymanski said. "At its core, the use of COMET is a way to enhance face-to-face collaboration mechanisms."

While the C2D engineers believed a multitouch table could improve the collaborative environment, very few were commercially available in 2008. The few that were available fell outside their price range.

They decided to create their own, buying supplies from big box hardware and electronics stores and identifying the right combination of camera, surface material, and infrared light. The team built and fine-tuned the necessary hardware and software components, and 6 months later, brought their creation to the Army Team Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance On-The-Move Event at Fort Dix (now the C4ISR Network Modernization Event) where it received positive feedback from warfighters.

Soon afterward, C2D demonstrated COMET to Microsoft, which agreed to enter into a cooperative research and development agreement. Although the U.S. government represents Microsoft's single biggest customer, the agreement with CERDEC was just the second joint research project for Microsoft throughout the federal government and DoD. "The agreement allows both organizations to share resources and intellectual property to advance the state-of-the art in touch- and gesture-based technologies," Anthony said.

"I see enormous potential for the military to leverage touch-, gesture-, and speech-based technologies. Our research has turned towards maturing, militarizing, and adding military applications to facilitate the use of this technology as a force multiplier."

—Michael Anthony, chief of the Mission Command Division for CERDEC C2D

Using the Microsoft Surface—a tabletop platform that detects touch commands—version of the technology, the COMET project continued to grow in its scope and capabilities. Today, it allows for collaborative planning through simultaneous user input and direct manipulation of digital objects, while sharing tactical graphics, unit locations, freehand drawing, and text chat with other systems, including CPOF; TIGR; and Force XXI Battle Command, Brigade-and-Below.

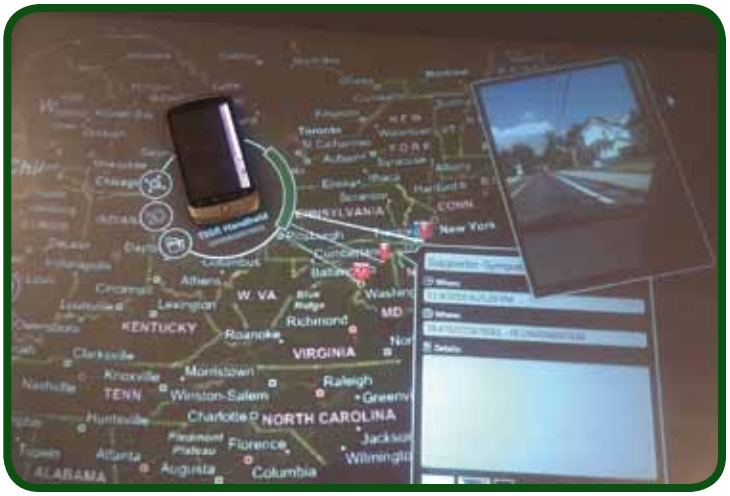
With TIGR, a collaborative software tool used to collect and analyze patrol and other operational data at the company level and below, the C2D team "took it a step further and did some development to really take advantage of the multitouch capabilities," said John Gillette, program manager and Force XXI Battle Command, Brigade-and-Below lead for TIGR.

First, they networked the table with other multitouch devices—including tablet laptops and smartphones—so they could seamlessly transfer data between them by simply setting the device on the table.

"The soldier would put the data in the handheld phone, and then the handheld phone would be laid on the multitouch table, and the information on the handheld phone would then be distributed to the table environment," Gillette said.

Also layered in was a timeline tool at the bottom of the screen, which allows users to touch and scroll back and forth in time to place TIGR data in historical context.

"You can easily have that TiVo replay effect," Palmer said. "That gives you the ability to quickly pan back in time and replay it, and try to understand what the enemy is doing, try to get a better idea of what your next move needs to be."



Data from the Tactical Ground Reporting (TIGR) system is seamlessly transferred between a smartphone and multitouch table using COMET.

U.S. Army Photo

A Multitouch Tool Kit

In the 2 years since C2D built its table from scratch, the commercial sector made significant advancements in multitouch technology, leading the Army to leverage commercial off-the-shelf hardware platforms, Anthony said. That spawned a new focus for COMET: develop a software developers' kit that will enable the military and federal community to easily and inexpensively develop, deploy, and share new capabilities across multitouch platforms.

To develop some of the initial tools for the framework, CERDEC has partnered with three universities, said Michael Sullivan, deputy project leader for COMET. Students at Morgan State University in Baltimore are working on a link analysis tool that will allow soldiers to import data from other Army systems, then explore how the data are connected.

"You can find connections that you didn't know existed before," said Dr. Kofi Nyarko, a professor at Morgan State. "And people can gather around this table, this environment, and actually share thoughts about how different entities are related to one another and make new discoveries."

A wargaming tool, sponsored by the Mission Command Battle Lab (MCBL) at Fort Leavenworth, Kan., and under development at Northwest Missouri State University in Maryville, Mo., will improve the digital planning environment and automate the reporting process.

"In my mind, it's all about getting capabilities to soldiers faster, and in order to do this, we have to work across organizational boundaries," said Calvin Johnson, deputy director of the MCBL. "As part of the COMET effort, MCBL's sponsorship of the wargaming application development is a valuable exercise in building diverse teams that are getting new mission command capabilities to the warfighter. We have to keep this kind of R&D [research and development] work and operational partnering the norm rather than an exception."

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—Calvin Johnson, deputy director of the MCBL

At Drexel University in Philadelphia, students are creating a "mash-up" solution that will facilitate communication between different programs—and allow soldiers to adjust the multitouch applications to meet their needs. For example, a soldier trying to format reams of incoming data—such as coordinates on a map—could manually enter one set of coordinates, and the program would automatically follow the pattern for the remaining data, said Max Shevertalov, a graduate student at Drexel leading the effort.

"That's what makes COMET fairly special," Shevertalov said. "It's so flexible—and yet it provides fairly uniform access for everybody."

Eventually, all the applications will speak the same language and preserve their data within the COMET framework, Shevertalov said. "It will be up to the soldier in the field to figure out, 'Well, I like this thing best for my task right now, but I might like something else next time,'" he said. "You're always picking the best tool for the job, instead of picking the best Swiss Army knife."

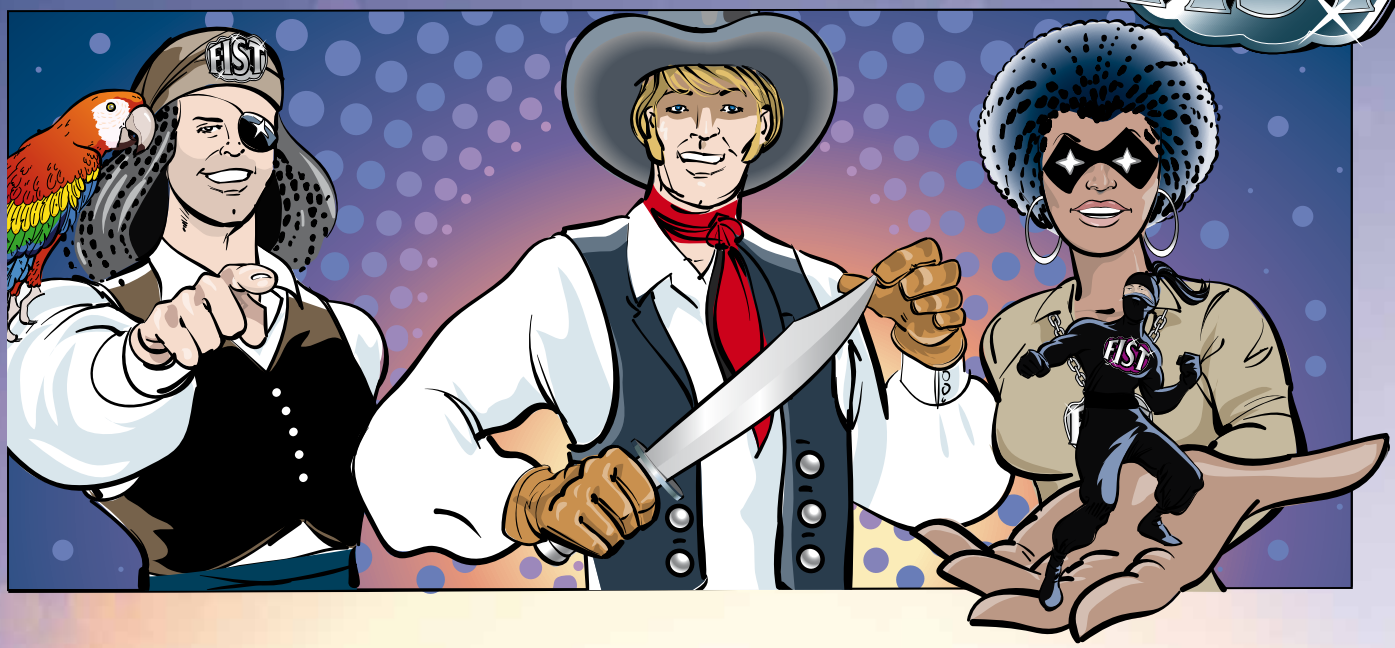
That philosophy also applies to the platforms warfighters will use to access those tools, Palmer said. By equipping the large tables, tablet computers, and handheld devices with the same capabilities, users at all echelons can benefit from multitouch technology.

Conclusions

"The key to our research is enabling warfighters to access and collaborate on any data no matter what platform they are using," Szymanski said. "It could be CPOF at a thick client work station, or large table-based systems, or handheld systems, or thin client systems. Each hardware platform has different advantages and disadvantages. Our job as Army engineers is to conduct research to maximize the advantages and reduce the disadvantages. The end result is a more powerful warfighter."

Heininger *is a staff writer for Symbolic Systems, Inc., supporting the Army's Program Executive Office Command, Control, Communications–Tactical MilTech Solutions Office. She is a graduate of the University of Notre Dame and a former reporter for* The Star-Ledger, *New Jersey's largest newspaper. The author welcomes comments and questions and can be contacted at* **claire.s.heininger.ctr@us.army.mil.**

FAST, INEXPENSIVE, SIMPLE, TINY FIST



FIST at 5

Looking Back, Looking Ahead

Lt. Col. Dan Ward, USAF

The March 2006 issue of *Defense AT&L* introduced a small group of superheroes called the FIST (Fast, Inexpensive, Simple, Tiny) team. While the concept had been around for a while, this was the first time the FIST acronym appeared in print. The next issue (May–June 2006) contained an article titled *FIST, Part 5,* which laid out the concept in more detail and tied together its previously unconnected elements.

In the 5 years since, FIST has made frequent appearances in this magazine (including two more comics), was introduced to dozens of classes at Defense Acquisition University and the Air Force Institute of Technology (AFIT), was researched at AFIT and MIT, and even earned a handful of mentions on *Wired* magazine's Danger Room blog and the National Defense Industrial Association's *National Defense* magazine.

Academic references and positive media reports are great as far as they go, but adoption by practitioners in the field was always the objective. I'm happy to report FIST has been implemented by a small-but-growing group of professionals across the Department of Defense (DoD), Department of Homeland Security, and industry. It's been applied

Illustrations by Jim Elmore

Speaking as a customer, I prefer to work with companies that deliver, preferably in my lifetime. Implementing FIST leads to frequent delivery, which combined with a higher success rate, means more business—and more profits—for you.

to a wide range of acquisition programs, from space hardware to intel systems to software to aircraft. The initial results are encouraging.

Now that FIST has been around the block a few times, I want to take a moment and reflect on 5 years of programs, experiments, and experiences. But first, let's set a foundation for any newcomers.

What Is FIST?

The past 5 years have seen FIST described as a set of values, a method, and a design approach, to name a few labels. Lately I've taken to describing FIST as "a decision-making framework." That is, FIST aims to help people make good decisions by guiding them toward opportunities to streamline, accelerate, and simplify various dimensions of the program. In practical terms this translates to simplified organizations, processes, architectures, and briefing charts—the specifics of which are unfortunately beyond the scope of a magazine article.

FIST also means rigorously enforced schedules and budgets, pared down requirement sets, and a disciplined focus on delivering capabilities on operationally relevant timelines. Or, as Department of Defense Instruction (DoDI) 5000.2 puts it, "The objective is to balance needs and available capability with resources, and to put capability into the hands of the user quickly." FIST offers concrete guidelines to help acquirers achieve that objective.

While FIST is entirely consistent with Department of Defense Instruction DoDI 5000.2, it is not exactly common sense. In many cases it is counter-intuitive and goes against conventional wisdom. That is, while the acquisition community often tries to solve problems by adding time, money, or people, FIST points to the wisdom of Fred Brooks' *Mythical Man Month:* "Adding people to a late project makes it later." Similarly, FIST argues that restructuring programs by extending the schedule tends to have a negative impact rather than a positive one. Instead, FIST calls for restraint and suggests using fixed schedules and floating requirements instead of the all-too-common inverse.

Conventional wisdom also tends to view complexity as a sign of sophistication. Program managers have been known to brag about how complex their systems are, but FIST posits that complexity is a sign of an *immature* design, not something to praise or pursue. True sophistication is found in simplicity. This is as true for PowerPoint charts and meeting minutes as for system architectures.

Along with overvaluing complexity, a desire for perfection and completeness often drives acquirers to produce documents that are unnecessarily unwieldy (and expensive). The FIST approach prefers the F-16 Falcon's 25-page Request for Proposal over the 26-page recipe for military brownies.

But Does It Work?

I have a big collection of examples that show FIST in action, but let me group them into two categories. The smaller category consists of programs that explicitly use the term FIST as their guiding principles. The other includes programs that fit the model without necessarily using the term. These programs used simplicity, budgetary restraint, and schedule restraint to deliver amazing capabilities.

I don't want to give the impression the second group learned about FIST from the pages of this magazine. I just point to them as examples that fit the model. In many of the cases that follow, their stories helped develop and mature the FIST approach. If anything, they get credit for FIST and not the other way around.

Harvest Hawk

The Marine Corps Harvest Hawk "instant gunship" went from inception to first strike in a mere 19 months, launching a Hellfire missile against the Taliban in November 2010. The key was clever reuse of existing airframes and munitions. You see, a

Harvest Hawk is basically a weaponized KC-130J tanker, retrofitted with missiles and sensors. An optional 30mm cannon is also available, but for the most part, the missiles pack more than enough punch.

With Harvest Hawk, the Marines clearly placed a premium on simplicity, thrift, speed, and restraint. This reversible mod costs far less than a new AC-130 and provides a simpler logistics footprint than a mixed fleet of KCs and ACs. The decision to make the cannon optional is a concrete example of engineering restraint and operational clarity—precisely the type of decisions FIST encourages.

Project Liberty

There's a lot we could say about the Air Force's award-winning MC-12W Project Liberty ISR (Intelligence, Surveillance, and Reconnaissance) aircraft. I could share all sorts of data about how program leaders used short schedules, tight budgets, simple technologies, and strong teamwork to deliver a critical warfighting capability. But for brevity's sake, here's a thumbnail timeline: The program kicked off in July 2008, awarded a contract in November 2008, delivered the first aircraft in March 2009, and deployed in April 2009. Rather than elaborate, I'll turn the podium over to Secretary of Defense Robert Gates, who told the MC-12 team: "Your work proves what industry and the military can accomplish together. And it reminds us that new platforms can be developed, built, and deployed in a short period of time—and the best solution isn't always the fanciest or the most expensive." 'Nuff said!

Condor Cluster

FIST's relevance is not limited to aircraft. In December 2010, the Air Force Research Lab cut the ribbon on a supercomputer named the Condor Cluster. Operating at a blistering 500 TFLOPS (**T**era **FL**oating Point **Op**erations per **S**econd), it is the fastest interactive supercomputer in the entire DoD. Remarkably, the Condor Cluster was developed for one-tenth the price of a typical supercomputer, and it uses less than one-tenth the power of comparable systems, reducing both its operating costs and its carbon footprint. How did the wizards at Air Force Research Laboratory nail such an epic win? They used 1,760 Sony PS3s running Linux, an open-source server operating system that also runs the 10 fastest supercomputers in the world. As with the first two examples, the Condor Cluster shows great things can be "developed, built, and deployed in a short period of time," without busting the bank. The key is simplicity, frugality, imagination, and a preference for speed.

I'm tempted to dedicate this whole article to regaling you with longer, more detailed stories about recent FIST programs. I could share several firsthand examples as well as stories from my colleagues across the defense acquisition community. However, we have other topics to discuss, so I'll limit myself to these three snapshots.

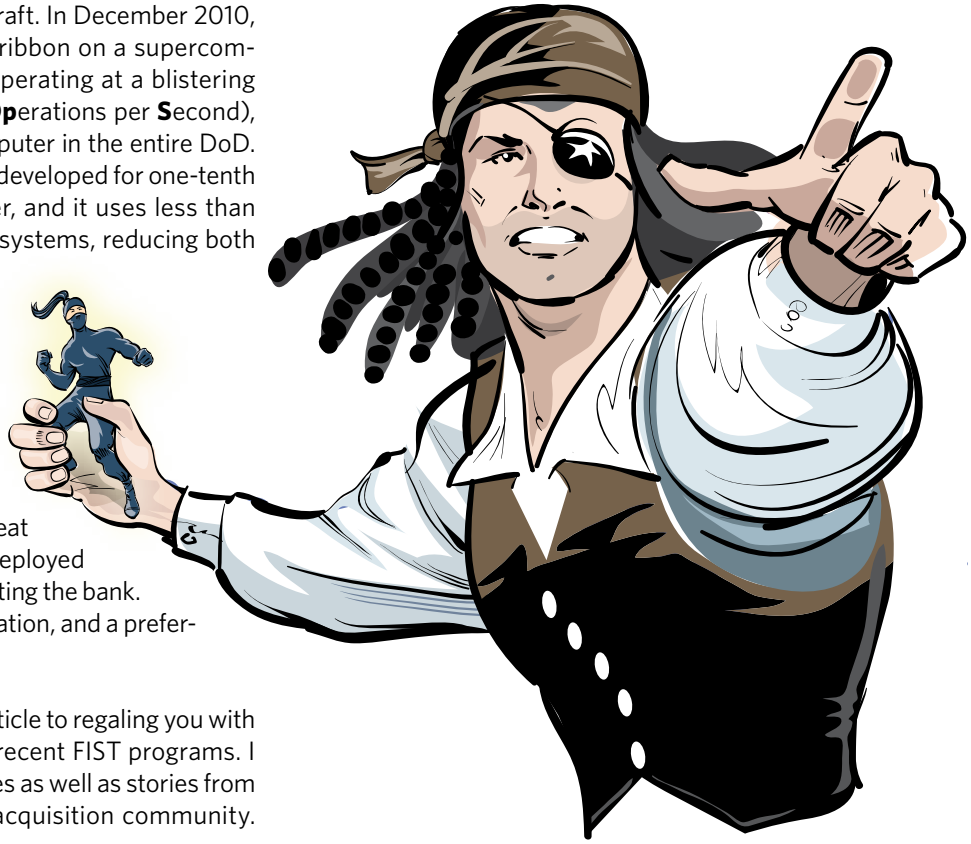
Tools, Principles, and Practices

FIST is not just a collection of ideas. It also provides practical tools for program managers, engineers, and other acquisition professionals.

The Simplicity Cycle is one of the core assessment tools in the FIST toolbox. First introduced in the November–December 2005 issue of *Defense AT&L*, the book version was published in 2007 and is available as a free eBook at Lulu.com. This little diagram highlights the impact of complexity and helps people understand and communicate the value of a design change. Don't miss Dr. Chet Richards' review in the November–December 2007 issue of *Defense AT&L*.

The Simplicity Cycle was one of the first items in the FIST toolbox, but the collection grew and matured significantly in the past 5 years. In addition to the principles and practices contained in *The FIST Manifesto* (see the November–December 2010 issue), FIST practitioners are now pointed to a wide variety of other techniques, processes, and approaches, many of which are borrowed from industry.

The family of Agile methodologies (i.e., Scrum, Extreme Programming, etc.) are laser-focused on reducing the cost, duration, and complexity of system development and are therefore key components of the toolbox. To help show the way, in April 2010 Carnegie-Mellon published an insightful report titled



Considerations for Using Agile in DoD Acquisitions. It's available online for your reading pleasure—ask Google for the link.

Toyota's much-imitated Lean approach contributes an impressive set of tools designed to reduce waste and increase effectiveness. These are keys to making things fast, inexpensive, simple, and tiny. Bill Peterson at the University of Tennessee is doing some fantastic work on applying Lean to business processes, with specific emphasis on the acquisition community (learn more at leanbusiness.utk.edu).

The late Genrich Altshuller's Theory of Innovative Problem Solving (TRIZ) is a master's class in design, with a strong emphasis on simplicity and speed. Altshuller's TRIZ contradiction matrix and 40 principles are powerful, elegant, and efficient. They should be required reading across the acquisition community (learn more at triz-journal.com).

Finally, there is the Modular Open Systems Approach (a.k.a. MOSA). This is not only a well-documented, proven method for reducing complexity, cost, and delays, it's specifically called out in DoDI 5000.2: "Program managers shall employ MOSA to design for affordable change, enable evolutionary acquisition, and rapidly field affordable systems that are interoperable in the joint battlespace." The Open Systems Joint Task Force has a big stack of resources, available at www.acq.osd.mil/osjtf/index.html.

These powerful tools are key to implementing FIST, but they are not shortcuts. As with any tool, expertise comes from practice. Truly mastering Agile, Lean, TRIZ, or MOSA requires concentrated study, experimentation, and dedication. If you're looking for an easy way out, you won't find it here. This is not easy, but it is also not impossible.

Now may be a good point to mention the *no monopoly, no guarantee* caveat. While FIST is a productive, constructive set of guidelines and a powerful toolset, it is not the only way to do good work, nor does it promise positive outcomes. It is entirely possible to use FIST and fail. Of course, these caveats apply to any approach, but I mention them here in the interest of full disclosure.

Having recapped the evolution of FIST, shared some success stories, and highlighted a few tools, I'd now like to address a topic that got little attention in the early days of FIST: the contractors who are such a critical part of the defense acquisition community.

A Brief Comment to Industry

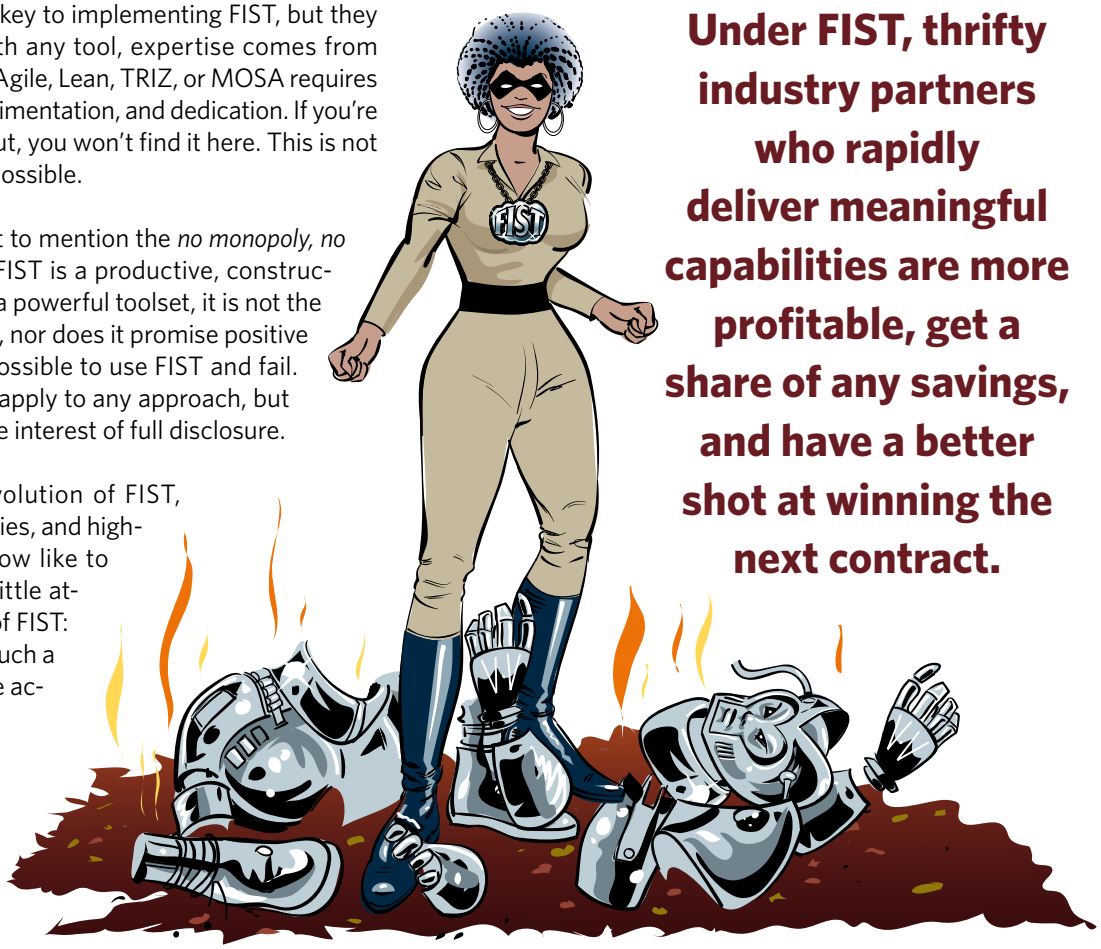
If I could only say one thing to our industry partners, it's this: *I want you to succeed*. I want you to be profitable, creative, efficient, robust, and world-class. In fact, I need you to be these things, because I can't do my job without you.

Even though government and contractors often have an adversarial relationship, the truth is we're not competitors. We're partners. I can't succeed unless you also succeed. So when I talk about FIST, I don't want you to get nervous. This approach has a lot of benefits for you, starting with profitability.

Let me say it again—I want you to be profitable. I want you to succeed in business because I need the products and services you provide. This is not at all inconsistent with the "Inexpensive" piece of FIST.

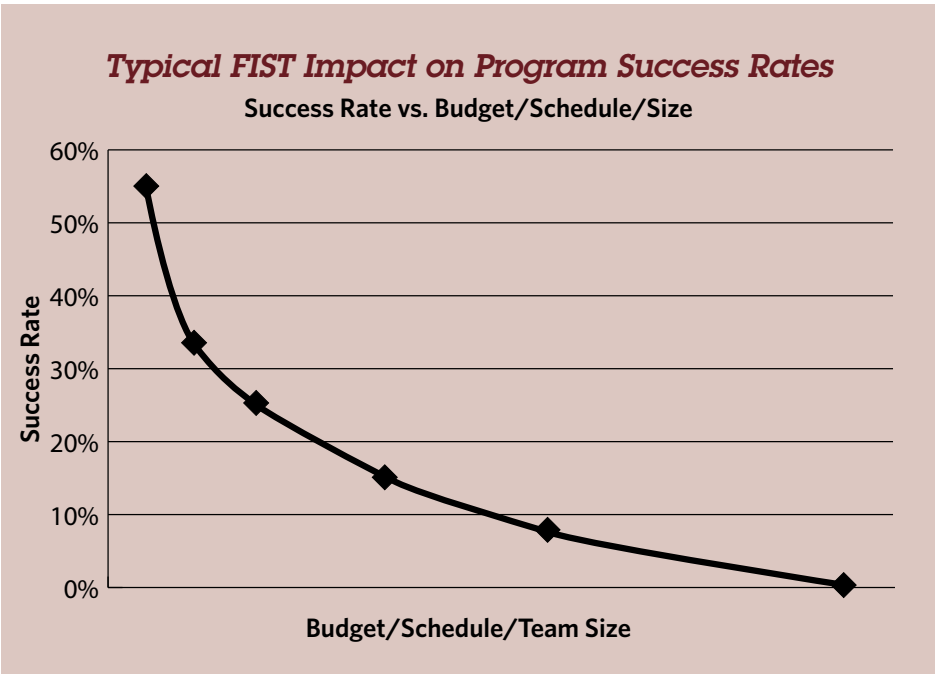
Someone recently pointed out to me that success is more profitable than failure. It's not a deep and profound observation. It's just one of those obvious, why-didn't-I-think-of-that sort of things. And when it comes to success, a significant amount of data indicates FIST has a higher success rate than the big, expensive, slow approach.

The notional graph shown here is based on a conglomerated set of data, primarily from The Standish Group. What it shows is that the measured success rate for development projects (defined as delivering on time, on budget, with all



Under FIST, thrifty industry partners who rapidly deliver meaningful capabilities are more profitable, get a share of any savings, and have a better shot at winning the next contract.

the features and functions as originally envisioned) follows this kind of curve, regardless of whether the x-axis represents money, time, or people. In each case, less is more. (I could have provided specific graphs with actual data for each dimension, but that would have been redundant.)



This graph tells us the FIST approach is likely to have a positive impact on your success rate. It does not say FIST never fails—check out *On Failure* in the May–June 2009 issue. However, it does suggest FIST fails less often.

Note that on the question of team size, we're talking about people-per-project, not people-per-organization. A large company might have a bunch of small projects at once, while a small company may only have a few. But if we scale things well, both large and small businesses will be able to contribute to the fight, and that's a win for everyone.

And at the risk of speaking out of school, I'd like to respectfully suggest it's better to have a profitable $10 million program than a $100 million program that doesn't make any money. Now, I'm not a businessman, so maybe that's a question of taste. Perhaps I'm showing unpardonable ignorance on the topic and if so, I'm sure my better informed readers will let me know. All I know is an expensive, unprofitable program sounds like a white elephant to me.

A few final comments before we move to the next topic: Yes, FIST is all about living within tight constraints of time and money. But it's also about delivering products. Speaking as a customer, I prefer to work with companies that deliver, preferably in my lifetime. Implementing the FIST approach leads to frequent delivery, which combined with a higher success rate, means more business—and more profits—for you.

FIST is also about rewarding and encouraging underruns, and encourages sharing any savings with industry. Many contract strategies can provide this sort of incentive—strategies that are well-documented and approved within the current policy and regulatory environment. The bottom line: Under FIST, thrifty industry partners who rapidly deliver meaningful capabilities are more profitable, get a share of any savings, and have a better shot at winning the next contract.

The Next 5 Years

What's next? Hopefully, more people will adopt FIST and use the toolset to reduce the cost, delay, and complexity of acquisitions. I'd love to see FIST become the preferred approach rather than a relatively rare exception.

For my Air Force colleagues, that might mean using Air Force Instruction 63-114, *Quick Reaction Capability Process*, as the first choice instead of a last resort. Other Services and Defense Agencies have similar options available to them. The point is we don't need a bunch of new policies and procedures. It is enough to simply shift the default toward existing methods and learn to use the tools all around us.

Along with wider adoption, I look forward to deeper development of FIST. Discussions are already ongoing with two universities to do additional research in this area. A clear, simple set of FIST-oriented metrics would help influence behavior at the enterprise level, so that's one possible research topic. And of course, as more PMs get more experience with FIST, I hope they'll share their insights with the rest of us.

What will the acquisition environment look like 5 years from now? If history is any indication, it will probably look a lot like it does today. But maybe not. Maybe things will change. Maybe a critical mass of acquirers will adopt the FIST approach and master these tools, reducing the cost, delay, and complexity of defense acquisitions. Maybe you'll be one of them.

I hope so.

Ward *is the chief of Acquisition Innovation in the Acquisition Chief Process Office, Office of the Deputy Assistant Secretary of the Air Force for Acquisition Integration. He holds degrees in systems engineering, electrical engineering, and engineering management. He is Level III-certified in Systems Planning, Research, Development and Engineering; Level II in Program Management; and Level I in Test and Evaluation and Information Technology. The author welcomes comments and questions, and can be contacted at* **Daniel.Ward@pentagon.af.mil.**

Blow Your Own Horn

Strategic Communications: Not Just "Nice to Have"—It's Critical to Program Survival

Linda Hillmer

If you're a program manager in charge of a large information technology program at DoD, ensuring your program's survival means you must effectively communicate its value to stakeholders.

As Department of Defense (DoD) budgets tighten, information technology (IT) programs will be increasingly scrutinized. In today's environment, running a program well simply isn't enough. Program managers must successfully communicate their program's value to survive and evolve into the joint programs serving America's defense now and into the future.

"Programmatic communications isn't for the faint of heart. It's best done by a professional who has experience in IT program communications. It's political, it's tactical, it's strategic, and it's got to be executed flawlessly with simultaneous events and products aimed at disparate audiences—and at a quality and speed that frankly isn't easy to find."

—Jacob Haynes, Acting CIO
Defense Contract Management Agency

I have been involved in DoD IT program communications for more than 20 years and have witnessed firsthand that technology programs often fall short not due to failures in technology, but because of failures in communication. Poor information sharing with stakeholders, a lack of meaningful interaction with user communities, and an absence of clarity around business objectives and benefits—these are common communications pitfalls that can derail even the most technically sound programs.

Strategic communication is key to ensuring a program's success, according to Jacob Haynes, currently the acting chief information officer for the Defense Contract Management Agency and a former program manager of a DoD joint IT program. "I knew that all the changes that we had to make to how our program operated—to include requirements prioritizing, testing, spiral development, and training tied to deployment—all of those things, even if they were done perfectly to a 'T,' wouldn't matter if we couldn't communicate about them to the right people at the right time. That's the difference communications makes to a program."

Too often communication is looked upon as a "soft" skill, a "nice to have" resource relegated to anyone on staff as "other duties as assigned." Perhaps because communication efforts are not as easily measured by traditional quantitative standards, program management professionals may overlook the value of a dedicated program communications effort. Yet the very success of a program, especially a highly visible program, hinges on a PM's ability to communicate with customers, stakeholders, and team members.

Lessons can be learned by examining two IT programs: the Defense Contract Management Agency's Standard Procurement System (SPS) and the Army's Logistics Modernization Program (LMP). Both were worthy of survival, yet each was on the brink of cancellation. With the help of effective program communications, both programs survived strategic pauses and are today supporting America's men and women on the frontlines.

Users Can Make or Break a Program

The SPS is a joint program conceptualized in 1996 to automate and standardize basic procurement functions across the Army, Navy, Air Force, Marine Corps, and 13 DoD agencies. It would terminate 76 legacy systems, saving an estimated $403.3 million. On top of that, SPS would finally achieve integration among and insight into DoD's acquisition, financial management, and logistics systems, allowing DoD to use business intelligence to affect strategic purchasing patterns and identify logistics needs earlier.

As SPS was the first DoD-wide enterprise business solution to use commercial-off-the-shelf (COTS) software, it was simultaneously a test case and a target.

Did SPS dedicate enough time and resources to communicate to users the department's vision, SPS's role, and the changes users would have to make to their business processes? Looking back with the clarity of 20/20 hindsight, probably not. Even though the program was considered "valuable" in DoD's larger vision—the under secretary of Defense for acquisition, technology and logistics said at the time that SPS was at the top of his priority list because it had such wide-reaching potential to make a positive difference—in 2001 he put SPS on "strategic pause," largely in response to the strong dissatisfaction voiced by SPS users and future users to DoD leadership, Congress, and the media.

It was into this firestorm that Haynes, at the time a U.S. Army colonel, entered SPS. He had the right pedigree: He had run two successful joint IT programs. He was a dedicated PM, passionate about whatever cause he stood behind.

The communications for the program were going to be especially challenging, Haynes realized, because, "When you have a homogenous environment, things are pretty easy. But when you start talking joint—and you're talking every post, camp, and station in the country and some overseas—you have a different set of problems." While SPS users (21,000 strong) were widely dispersed (700+ locations), they seemed to be cohesive in their disappointment with the program.

"We had to wrestle back control of the message," explained Haynes. "It's imperative that a PM own the message—especially in today's environment of instant communication. It was challenging ten years ago when all we had to deal with was GAO, print publications, television, and the Internet. Now you have social media and bloggers and Twitter. I can't imagine being a PM today and trying to handle all of those without a professional communications strategist by my side."

Haynes brought in a strategic communications firm [full disclosure: I own the firm that handled both SPS and the other program in this article] that worked hand-in-glove with the public affairs offices (PAOs). The team set up three strategic communications campaigns that ran simultaneously, each with three distinct audiences, which meant, in essence, nine communications campaigns—all operating toward a strategic vision for the program's success.

Haynes explained, "We had a campaign that targeted the immediate needs. That was highly tactical. Then we had one that put us six weeks out, and another that was a year or two out. This meant that we could deal defensively with the challenges right in front of us while also playing offense to ensure we achieved our vision for the program. And it worked faster and better than we had imagined."

Haynes' dedication to the program meant he personally owned communications, stating, "The PM absolutely must own communications. The PM is the most agile person in the organization. He or she can make decisions without layers of bureaucratic red tape."

As a result of the operational changes to the program *and* the strategic plan to communicate the changes, in early 2003 SPS was lifted from strategic pause. The program was deemed fully operational, and more than 65 percent of DoD purchases were flowing through SPS. The program, which was on solid ground, was then moved under the Army's Program Executive Office for Enterprise Information Systems (PEO EIS) to give SPS the program management discipline that a PEO environment provides.

Kevin Carroll, who had been the PEO since 1999 [when PEO EIS was PEO Standard Army Management Information Systems (STAMIS); the program changed in 2002], saw firsthand the difference that strategic communications made to SPS.

"Professionally managed strategic communications saved SPS. Not singlehandedly of course, but in conjunction with real programmatic changes. Without effective communications, SPS couldn't have survived. How else are you going to know what users and customers are saying if you don't manage feedback?"

Pentagon Gossip Can Kill a Program

The Army's Logistics Modernization Program (LMP) was conceived in 1999 and is one of the world's largest, fully integrated supply chain maintenance, repair, and operations (MRO) planning and execution solutions.

LMP was still in development when it was pushed into use ahead of schedule to answer the needs of logisticians on the front lines in Afghanistan and Iraq. In July 2003, it was deployed to 4,000 users, most of whom didn't understand the changes the system would require them to make in their processes. Training and deployment were simultaneous. By its very nature, LMP asked users to subscribe to a standard set of business processes in order to make the system work and to provide DoD with the ultimate payoff of the enterprise resource planning (ERP) system: to deliver total situational awareness of Army assets and improve readiness while reducing inventory and theater footprint. However, changing their daily work processes to accommodate a new IT system was not something most LMP users understood was expected, and yet suddenly their everyday business processes, like the processes of SPS users before them, were turned upside down by an IT system that they were now expected to use.

Damaging rumors about LMP swirled around the Pentagon and in the media. LMP was put on strategic pause by the Army in 2006, and the program moved under PEO EIS, which had experience in managing large-scale systems implementations. To determine if the rumors about LMP were true, Carroll appointed as acting PM David Coker, at the time a U.S. Army colonel and an experienced PM who had run the Army Logistics Information Systems.

"It turns out the rumors weren't true," said Coker. "In fact, they were 180 degrees from the truth. So here we had a program that was successful yet was on the chopping block because of rumors," recalls Carroll. "Clearly LMP needed strategic communications. You can bury your head in the sand, but eventually Pentagon gossip will kill a program."

Coker brought in the strategic communications team that had helped SPS a few years earlier.

"Programmatic communications isn't for the faint of heart," warns Haynes. "It's best done by a professional who has experience in IT program communications. It's political, it's tactical, it's strategic, and it's got to be executed flawlessly with simultaneous events and products aimed at disparate audiences—and at a quality and speed that frankly isn't easy to find."

Coker oversaw the development of a strategic communications campaign for LMP that focused on users and Army leaders. "I joked that it was like being a rock star on tour, in that my team and I were constantly on the road, having meetings, giving briefings, and doing conferences. At one point, we had hit 30 key decision makers in 45 days! We gave people enough information—the good and the bad—to allow them to make their own judgments about the program. One of the things you don't want to do is exaggerate. You want to be passion-

Where Are They Now?

- SPS is fully deployed, has 27,000 users in 750 locations worldwide, and has processed more than 902,000 contract actions worth $173.5 billion in FY 2009.
- LMP is in its final deployment and will have 17,000 users in 2011; the system handles 1.3 million transactions daily.
- Kevin Carroll retired from the federal government in 2007 after 30 years of service. He is now a consultant and owns The Kevin Carroll Group.
- David Coker left LMP in 2006 and retired from the U.S. Army in 2007. He is now a Senior Vice President for DoD Programs with Microtech.
- Jacob Haynes handed over command of SPS in 2005 and retired from the U.S. Army later that year. He is now the Acting Chief Information Officer for DCMA.

ate about the program but not emotional. When things aren't going as planned, you need to be honest and show a plan to address the issue and then allow stakeholders to buy into your solutions."

Within 6 whirlwind months, the Army lifted LMP from strategic pause, the GAO noted the program's changes, and LMP was given the green light to move into full deployment.

"For LMP, once we showed success, the program became even more successful," remembered Coker. "Success breeds success. Getting the word out was really the right thing to do for the program."

Conclusion

The lessons from SPS and LMP can help astute program managers who genuinely believe their IT programs are crucial to our nation's defense. As DoD budgets tighten, IT programs will need strategic communications to survive and serve our nation's defense. The bigger the program is, the bigger the target it becomes and the more crucial strategic communications becomes to the program's success.

Carroll explains: "There is fear among PMs today about communications. 'I don't want anyone to know about my program; we'll get in trouble if they do.' Or 'We can't afford communications.' There's fault in that reasoning," says Carroll. "Because if you don't communicate about the program, then no one knows about it, and no one cares about it. And before you know it, the program is about to be cut. The fact is, strategic communications is imperative to an IT program's success."

Hillmer, *a former DoD contracting and public affairs professional, consults on program communications. She is founder and CEO of CorpComm Inc., which helped program managers for the Standard Procurement System and Logistics Modernization Program successfully communicate to stakeholders their program goals and strategies between the years 2001–2005 and 2006–2009, respectively. The author welcomes comments and questions and can be reached at* **lhillmer@corpcomm-inc.com.**

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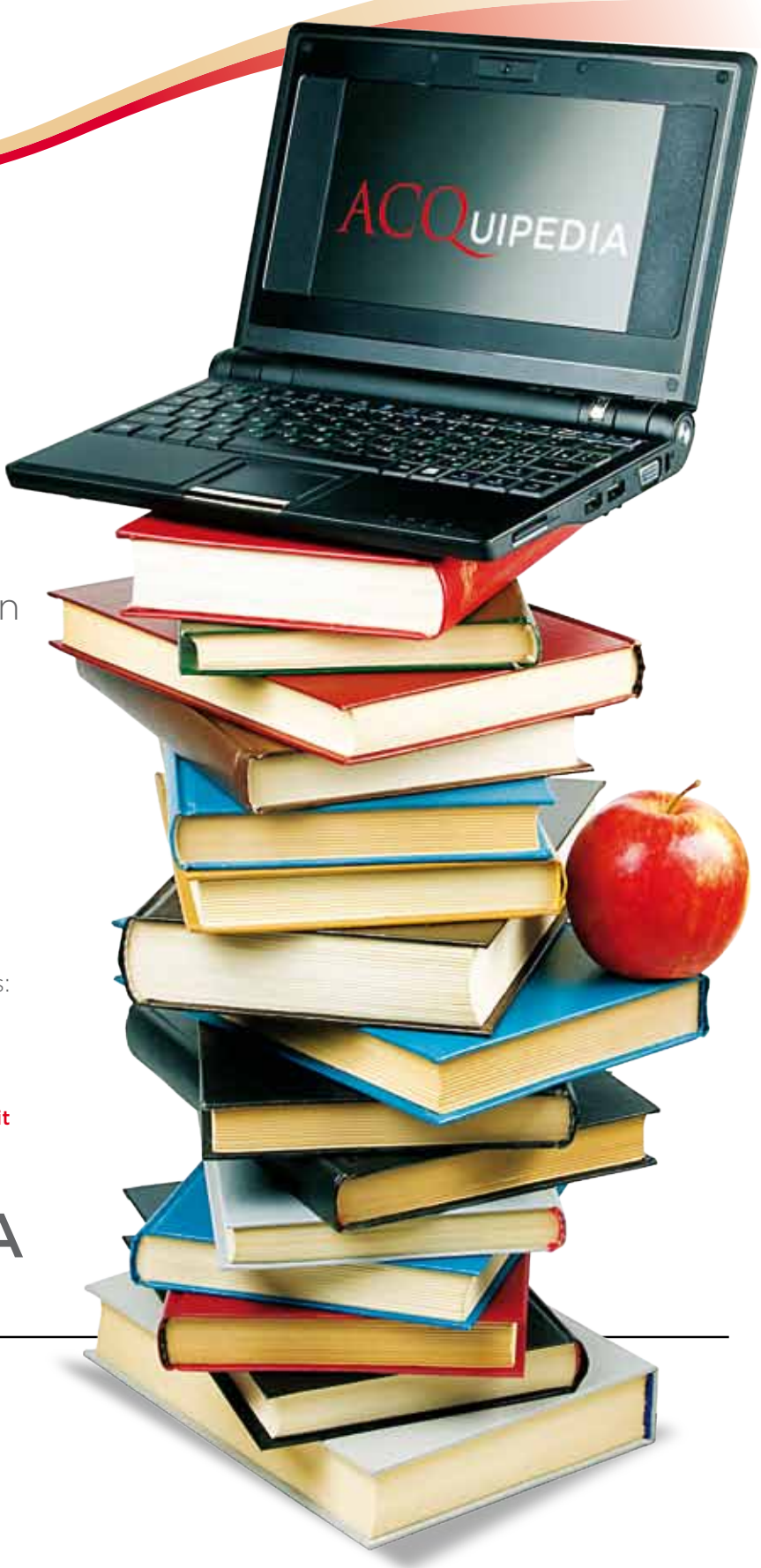

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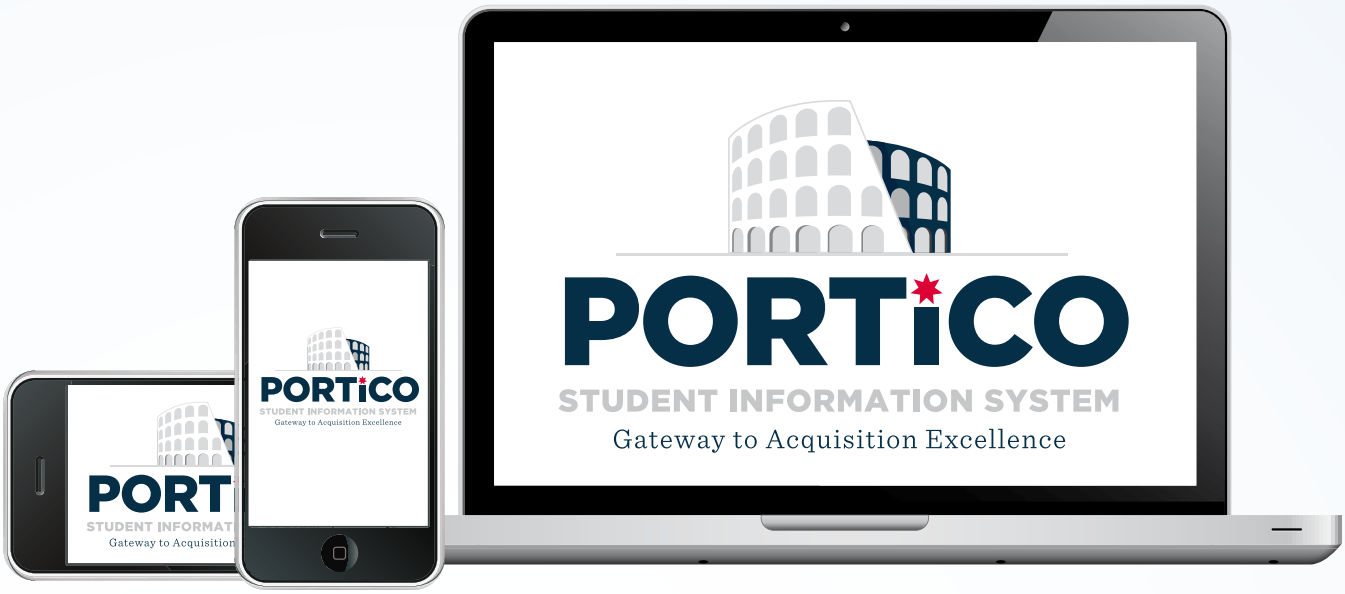
NEED FINDS OPPORTUNITY

21st Century COTS Solution Promises to Improve the Student Experience and Address a Strategic Need

Ron Vassallo

Last year, at the completion of a Government Accountability Office (GAO) audit of DoD's acquisition workforce training titled "Defense Acquisition Workforce: DoD's Training Program Effective But Improvement is Needed" (GAO Report No. GAO-11-22), the GAO made two overarching recommendations to congressional oversight committees. In brief, these recommendations were:

- DoD must demonstrate and track how training efforts contribute to improved acquisition workforce performance.
- To improve DoD's ability to identify acquisition training needs for planning and front-end analysis, the department needs to acquire and implement an enterprise-wide, integrated Student Information System (SIS).



To the average member of the Defense Acquisition Workforce, GAO's recommendations likely went unnoticed. If noticed by enquiring minds, the reference to this 21st century commercial-off-the-shelf (COTS) technology was as clear as an economic briefing by Alan Greenspan—before the first morning coffee. The Defense Acquisition University (DAU) and the Defense Acquisition Career Managers (DACMs) hope this current reality changes as the SIS becomes both familiar and essential to the entire acquisition community.

GAO's report focused on the strategic necessity of the SIS, noting,

> ...DAU faces challenges with the management and forecasting of training demand data...which hinders its ability to accurately facilitate getting the required training to acquisition workforce members in an efficient and cost-effective manner...[Consequently,] DAU has identified the need for an integrated student information system to improve the quality of the data and to provide greater insight into the workforce it supports.

While improved forecasting represents a key value proposition, over the last decade SIS technology has had a far greater impact on the management of leading higher education institutions. SIS technology, best thought of as an enterprise resource planning tool for the higher education community, fuses administrative and academic functions. As Mark Whiteside, the director of performance and resource management and executive program director for the PORTiCO initiative, often cites, "Our decision to adopt SIS technology is all about applying the power of 21st century technology to the purpose of improving acquisition outcomes." In other words, PORTiCO will make it easier for students, DACMs, DAU staff, and faculty to manage data and decisions through secure, 24x7, online access to the information they need. Students will search and register for classes by requirement or date, and will retrieve certification audits. Faculty will easily manage course information, rosters, and grading, as well as communicate with students. All of this activity will occur on one, simple interface.

Benefits Realization for the Acquisition Workforce

Leading universities and community colleges in the United States and around the globe have adopted SIS technology to improve the student experience and to foster more agile, integrated, and productive enterprises. Although we have a very different community, our aim is the same: continuously improve career training for the Defense Acquisition Workforce.

For everyone with a stake in the training of the Defense Acquisition Workforce, PORTiCO has the potential to transform workforce preparedness through the adoption of global best practices. This adoption of standardized and validated processes is the fundamental and compelling value of a COTS solution. While no technology is a panacea, benefitting from the collective wisdom of global higher education practices in key areas such as registration, schedule development and management, course catalog, student profiles, career management, student services, communications, and reporting—

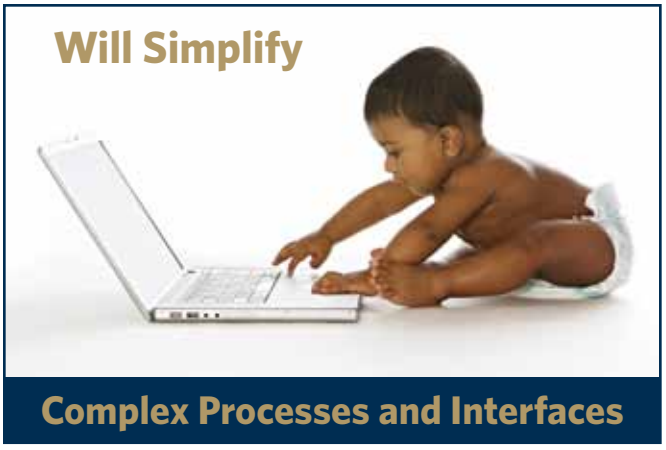
to name a few—promises to prepare DAU and the workforce for 21st century challenges.

So How Will PORTiCO Transform Workforce Training and Readiness?

PORTiCO will integrate. For the past two decades, DAU and the DACMs have invested time and resources toward the development of the current systems managing the registration and reporting processes. Nevertheless, this custom solution development has fostered increasing fragmentation of systems and data repositories. Out of the current patchwork of resources, PORTiCO will integrate all of the critical processes, technology, and strategies (including acquisition training data, assets, and career development resources) into one accessible gateway. This single destination will serve as the central community resource that will enable the workforce, DAU, and the DACMs to achieve both individual professional goals and the strategic objectives of the Defense Acquisition Workforce Improvement Act (DAWIA). We anticipate the new enterprise system will build on the foundation and legacy of past innovation.

PORTiCO will simplify. Instead of continuing to invest in increasingly complex and cobbled proprietary systems, the SIS will help simplify and standardize our processes by adopting commercial best practices.

PORTiCO will instill transparency. The increased transparency manifests itself in the form of access to real-time reporting, audit trails for strong accountability, and visibility to activity and outcomes throughout the entire workforce. This broader visibility will engender a better user experience for students and, as noted in the GAO findings, more actionable business intelligence for the Pentagon.



Good Idea, But Why Now?

Need Finds Opportunity. Or in other words, the commercial technology has come of age just as the urgency for better solutions has peaked at the DoD. What was once a cutting-edge technology for pioneering higher education institutions has become a mature, state-of-the-art solution with a track record of impact. The maturation of these enterprise systems lowers the risk of adoption and creates an opportunity for the absorption of global best practices. The timing could not be better given the growing demands to produce more training and more career guidance with fewer resources.

Using the Mobile Industry Experience

The introduction of the SIS is reminiscent of another industry's evolution. The mobile (or cellular) phone industry began with the promise to untether society: a straightforward objective with powerful implications. If we could travel back in time, we would notice some strong similarities between the first mobile phone introduced by Dr. Martin Cooper of Motorola (1973) and the development of information systems in support of acquisition training. This breakthrough technology—weighing in at 4.5 lbs. without its fashionable carrying case—was "boxy but good." This phrase would aptly characterize our early acquisition training systems.

The mobile industry pushed on and continued to drive design toward increasingly feature-rich and complex handsets—feature-rich but less functional. Then came the iPhone. Function finally met form. It was the simplicity of the iPhone user experience that realized something we will call FUMIFU—First Use Must Inspire Future Use—making the user experience so simple and compelling that the users embrace the technology and use it to drive unanticipated innovation.

The history of the mobile phone closely mirrors the evolution of our acquisition training systems. We have developed increasingly complex and customized processes enabled by systems that have been developed through layers of coding. These layers have become less integrated and more challenging to navigate for users and system administrators. Over several decades, these legacy systems have made an extraordinary contribution to managing acquisition training, but their ability to provide 21st century support for the workforce is waning. PORTiCO is a response to this need. This new technology will deliver the capabilities to redefine training processes and drive innovation. The PORTiCO initiative's objective is nothing less than FUMIFU. The entire workforce will determine the rest.

How Will the Workforce Benefit?

To get specific about how the workforce will benefit, let's begin with students. While many students may be satisfied with their current training and career tools, a recent survey of recent graduates captured direct feedback on what could be done to make the registration experience better. The SIS will provide students with a personalized training and career toolkit. Students will organize their experience according to their preferences and professional goals. We'll also enable them to peruse the course catalog, register for courses, understand certification requirements, download pre-course work, and communicate with faculty all through one simple interface. If a student needs guidance or has a question on waitlist policy, the student can access a quick self-help guide. If it's time for a change, then this future platform will serve as guide to keep the student ahead of the game. Select a career path and the SIS will generate a training scenario with the list of remaining courses and requirements. No confusing steps, no dead ends, and always open for business.

It's also a great resource for faculty to stay connected. Much like students, faculty will enjoy a simple user experience personalized to meet their specific objectives. With the ability to communicate with individual students or groups of students, the SIS will provide robust communication options—also delivering the ability to flexibly communicate when they want. Moreover, access to comprehensive student profiles, outlining courses taken, academic history, and work experience, will also let faculty know a little more about their students.

The sheer usefulness of the SIS outweighs even its premier communications capabilities. With new classroom management capabilities and seamless integration with ATLAS Pro and Blackboard, the SIS will eliminate the paperwork and establish one destination for every critical task associated with managing the classroom, from class rosters to student grading.

For DAU staff members in the trenches—academic deans, ed techs, regional staff, schedule management, and student services—the SIS will gather a powerful set of resources to get their jobs done efficiently and without kluge workarounds. For these roles, the SIS means nothing less than a sea change—one that will have a dramatic effect on productivity while promising to keep more hairs on your head.

This change means that daily tasks are less frustrating. No longer do users need to access multiple systems to achieve a single task. Using single sign-on technology, users will not need to write multiple passwords on their hands. Paper audit trails for thousands of schedule changes become automated along with the communications alerting students and faculty of the change. With real-time access to enterprise-wide activity, we'll also get better at demand forecasting, thereby driving down the number of changes that need to occur.

For component DACMs, the benefits are equally compelling. The SIS isn't starting from scratch. Rather, the SIS will benefit from a foundation of investments, process re-engineering, technology development, and many lessons learned by the DACMs over the last decade. The SIS represents the next natural step in this progression.

Out of the current patchwork of resources, the Student Information System will integrate all of the critical processes, technology, and strategies (including acquisition training data, assets, and career development resources) into one accessible gateway.

The SIS will support DACMs in their primary mission of helping the Defense Acquisition Workforce manage their professional acquisition careers. The SIS will provide access to comprehensive DAWIA student records, real-time reporting, and the ability to customize workflow for their specific constituency. Access to real-time workforce activity from filled seats to certification rates will also deliver the kind of business intelligence required to make agile decisions about resources. This new visibility will also empower DACMs to view DoD enterprise-wide activity and to work in a coordinated fashion to achieve DAWIA objectives.

Senior defense leadership as well as Congress will acquire the same insight empowering DACMs to make agile decisions, and this data will serve as a catalyst for action. The enterprise-wide visibility, new efficiencies, and adoption of commercial best practices promise real strategic advantage in workforce preparedness and DoD's ability to steward its acquisition resources.

Final Thoughts

The intent is to field the Student Information System in 2012 in time for the 2013 registration cycle. Its success will depend on a collaborative effort by all acquisition workforce stakeholders to embrace the opportunity to adopt best practices and an integration effort that will improve enterprise productivity. GAO has cited some of the system's strategic value but, as presented in this article, the SIS promises substantial value for every constituent member in the acquisition workforce. This breakthrough opportunity will introduce challenges, but the arrival of SIS and its accompanying benefits will make the prize well worth the journey.

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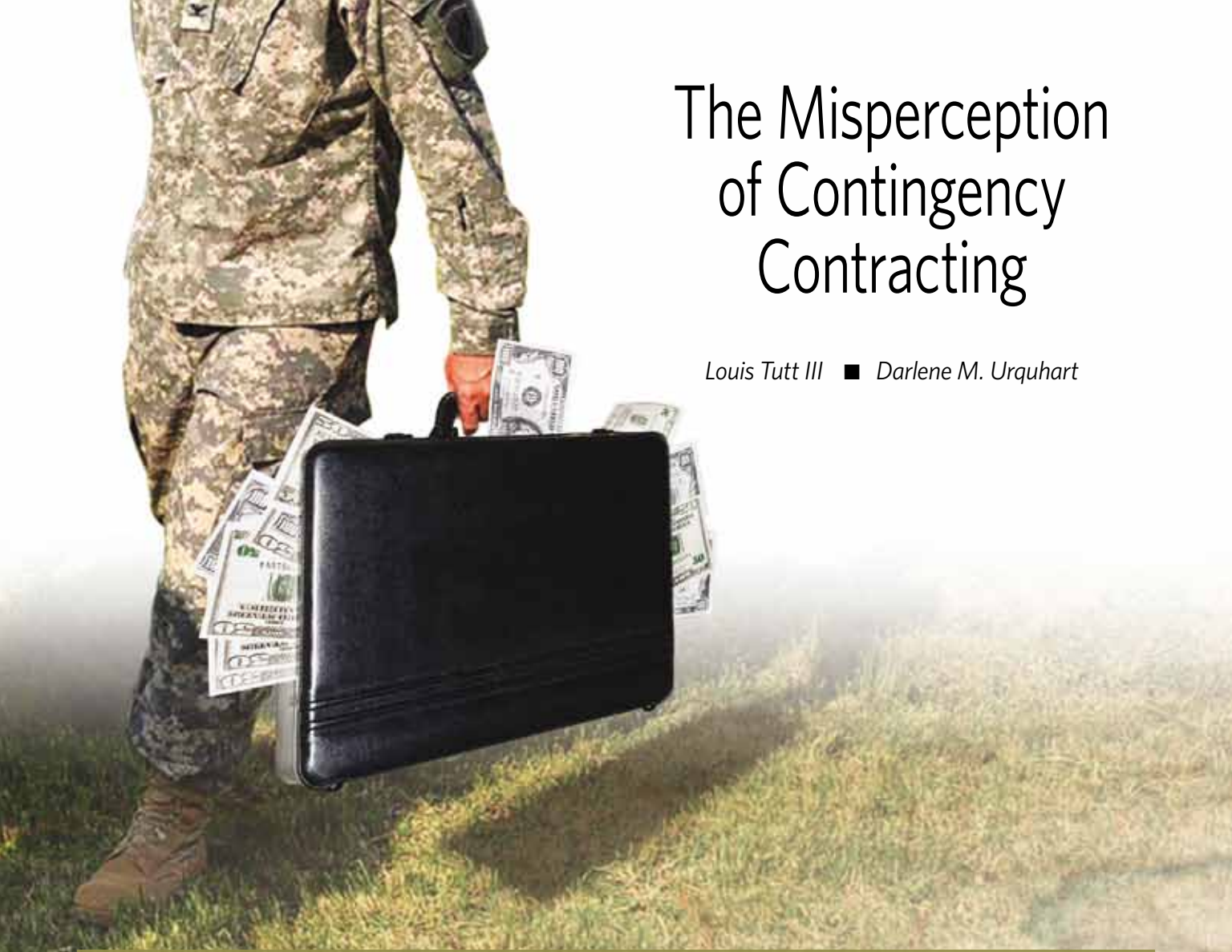

The Misperception of Contingency Contracting

Louis Tutt III ■ *Darlene M. Urquhart*

When many people think of contingency contracting, a myriad of images come to mind. Many of these images are related to war, as in Iraq and Afghanistan. Contingency contracting is something done by soldiers on the battlefield. Other images revolve around the activities associated with contingency contracting—typically images of military men and women carrying bags full of money executing purchases on foreign soil. While these images are not totally inaccurate, they are limited in scope.

Contingency Contracting, Broader in Scope

First, contingency contracting is much broader in scope than Major Theater War (MTW). While a huge focus is placed on contingency contracting in Iraq and Afghanistan, contingency contracting officers (CCOs) are trained to support a wide range of operations—both MTW and Military Operations Other Than War (MOOTW). Small scale conflicts, contingency operations such as counter-drug operations and combating terrorism as well as disaster relief operations fall under the umbrella of contingency operations. Hurricane Katrina and relief operations in the aftermath of the earthquakes and floods in Pakistan are striking examples of recent disaster relief operations.

Secondly, contingency contracting operations are supported by both military and civilian operators from a myriad of organizations. While early entry modules in MTW normally support contingency contracting with military

personnel, as the operation matures civilian assets are often deployed in support of contingency operations.

Civilian Expeditionary Workforce

The Civilian Expeditionary Workforce (CEW) is a cadre of Department of Defense (DoD) civilian employees that have been pre-identified for support of DoD contingency operations. The members of the CEW have been organized, trained, and equipped in a manner conducive to support of operational needs.

CEW management has evolved from the original Emergency Essential (E-E) and other ad hoc arrangements to a new taxonomy structured for the 21st century. CEW members may be designated as: 1) Emergency-Essential (E-E), 2) Non-combat Essential (NCE), and 3) Capability-Based Volunteers, including Capability-Based Former DoD Employees. Members of the CEW support contingency operations by either deploying forward or performing backfill missions for DoD personnel who have deployed.

Members of the CEW have supported operations in Kuwait, Iraq, and Afghanistan procuring supplies, services, and construction as well as performing contract administration functions that are critical to the contracting process. For example, CEW provides robust capability to the U.S. Army Corps of Engineers. Contracts for medical facilities and other structures that are critical to the rebuilding of Iraq are executed by members of the military and CEW. In Afghanistan, contracts for support of Provisional Reconstruction Team (PRT) facilities, the building of wells and schools—all are executed by a mix of dedicated military and civilian contracting personnel.

Another important function performed by civilians in support of contingency contracting efforts in Iraq and Afghanistan is reachback. Reachback provides a critical capability to deployed contracting offices. Reachback operations provide contracting support for requirements that are far too complex for in-theater contracting offices; for requirements in which the reachback office has specialized skills, knowledge, or expertise; or for requirements for which the contracting process can be done much more efficiently outside the Area of Responsibility (AOR).

Reachback operations can also increase the pool of potential operators available to assist in contingency contracting operations. Those personnel who are not medically able to deploy in support of contingency contracting operations can still, in many instances, support through reachback operations in the continental United States locations. This has the impact of providing additional support, limiting the downrange footprint, and increasing the mean time between deployments for deployable assets.

Thirdly, contingency contracting operations have evolved from the lone contracting officer with a paying agent with a bag full of money following him throughout the vendor base. While in the initial stages of contingency contracting operations, this approach may be advisable, contingency operations typically morph very quickly into a level of complexity that demands a more sophisticated approach to contracting. Contingency contracting operations, with a host of nuances and complexities soon overwhelm operating with this level of sophistication. Technology, resulting in improved e-business processes and tools, shatters this myth of oversimplification of the contingency contracting process. Three major e-business tools have evolved to support recent contingency operations: 1) Synchronized Pre-deployment Tracker – Enterprise Suite (SPOT-ES), 2) Contingency Acquisition Support Model (CASM), and 3) 3-n-1 tool.

Contingency Contracting Misperceptions

A number of long-standing misperceptions surrounding contingency contracting persist. So what is the reality? The first reality is that contingency contracting is contracting in an expeditionary environment—a concept that is foundational to understanding contingency contracting. Inherent in that statement are a number of things crucial to the success of contingency operations. The most basic is that contingency contracting is not for the uninitiated. Contingency contracting allows for a great number of contracting flexibilities to be applied to the contracting process. The key, however, is a fundamental understanding of the contracting process itself. Extensive baseline knowledge of the Federal Acquisition Regulation (FAR) and the Defense Federal Acquisition Regulation Supplement (DFARS) is critical for success in contingency operations. CCOs must have an extensive knowledge of pre-award through post-award actions inclusive of acquisition planning, contract types, contract pricing, contract financing, and source selection below and above the Simplified Acquisition Threshold to successfully support customer requirements in an expeditionary environment. It is only atop this baseline expertise that the CCO can then start to think about applying the flexibilities inherent to a specific contingency operation.

According to testimony before the Commission on Wartime Contracting (COWC), a well-trained workforce is foundational and critical to the acquisition process. The good news is that progress is being made in this area. Training courses, both resident and online, as well as on-the-job training are helping to develop expertise in CCOs. For example, the Air Force uses the Mission Ready Airmen Course (MRAC) for training enlisted personnel and the Mission Ready Contracting Officer Course (MRC) for Air Force officers and civilians (on a space-available basis). As most deployed contingency contracting offices are joint in nature, with a mixture of the different services, as well as, civilians, CCO training often takes on a similar flavor, as exemplified by the Army sending some personnel to the Air Force MRAC course.

As another critical component in the training of CCOs, The Defense Acquisition University (DAU) has taken significant steps to improve training for contingency contracting personnel, both military and civilian. DAU restructured Con-

tingency Contracting (CON 234) into the Joint Contingency Contracting Officer course to update and align the curriculum with the Joint Contingency Contracting Handbook. In addition, a new simulation, Barda Bridge, was developed and fielded in 2008. Given the recognition that different/enhanced skill sets were required of those in leadership positions in contingency contracting operations, DAU developed and fielded a new course designed for that target audience (CON 334). CON 334 is a 4-day intensive work experience that requires potential Chiefs of Contracting Offices or staff-level personnel to engage in thinking about contracting actions from operational and strategic perspectives. Work is ongoing to inject new gaming simulations into CON 334.

Technology, resulting in improved e-business processes and tools, shatters this myth of oversimplification of the contingency contracting process.

In addition to the traditional classroom environment, engagement in exercises and other training events support the development of the contingency contracting workforce. Predeployment immersion exercises, consisting of a mixture of classroom and field exercises, hone the necessary skills for success in the contingency environment. Emphasis on, and improvements in, training highlight the good news side of the story. The bad news for many is that developing a proficient and well-trained CCO takes time. Education and training cannot wholly substitute for experience. Great CCOs are a product of education, training (classroom, online, and on-the-job training), and experience.

One of the other great misperceptions about contingency contracting is that there are no rules. In corollary, the infamous quote, "The FAR doesn't apply here," has been spoken in every contingency operation in recent history: Bosnia, Kosovo, Iraq, and Afghanistan. Hurricane Katrina was, in all probability, spared because operations were conducted on U.S. soil. The FAR is applicable to all contingency operations. Special provisions and relaxation of the rules, if required, are part of the flexibilities inherent to the process of contingency contracting. This "no rules" misperception is yet another reason to ensure that contingency operations are supported by the qualified. Quantity and quality are not synonymous with respect to CCOs. If the contracting process is not well-managed, mismanagement can potentially lead to less than efficient operations that increase opportunities for fraud, waste, and abuse.

According to the Commission on Wartime Contracting (www.wartimecontracting.gov), Congress has appropriated in excess of $830 billion since 2001 to fund Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF). Given the often immature business environments in which CCOs operate, the high operational tempo under which they operate, the number of contracting actions they execute, along with the associated dollar amounts of obligations, oversight are critical to the effectiveness and efficiency of the contracting process.

Significant oversight initiatives have been taken with respect to operations in OEF and OIF. The Army commissioned a review of Army contracting operations which resulted in the *Gansler Commission Report: Urgent Reform Required: Army Expeditionary Contracting* published in 2007. In addition to the *Gansler Commission Report*, reports were also promulgated from the Special Inspector General for Iraqi Reconstruction and the Special Inspector General for Afghanistan Reconstruction.

Under Section 841 of the National Defense Authorization Act, an eight-member bipartisan legislative committee was established to study contracting operations in Iraq and Afghanistan. The COWC was mandated to study/review federal agency activities with respect to reconstruction, logistics, and security, with a specific emphasis on assessing the extent of fraud, waste, abuse, and overall mismanagement in wartime contracting. In addition to the COWC, the DoD Inspector General (IG) has also conducted extensive reviews and audits of operations in Iraq and Afghanistan. Given the amount of oversight of contingency operations, in addition to the investigative services of the military services, the Defense Contract Audit Agency (DCAA), and normal contractual legal reviews, the myth of "anything goes" in contingency operations should be completely shattered.

So after a truncated and succinct exploration of the misperceptions surrounding contingency contracting, what are the take-aways?

1. It takes a village. Contingency contracting operations are a synchronized orchestration of military and civilian assets from the military departments (Air Force, Army, Marines,

and Navy), combat support and other agencies (Defense Contract Audit Agency [DCAA], Defense Contract Management Agency [DCMA], Department of Homeland Security [DHS], Federal Emergency Management Agency [FEMA], Defense Logistics Agency Joint Contingency Acquisition Support Office [DLA JCASO]), and oversight (IG, investigative agencies, legal, special commissions) across the full spectrum of the acquisition process from pre-award planning activities through award, contract administration, and contract closeout.

2. Contingency contracting is not for the untrained and uninitiated. The rapid and complex change, the high Operations Tempo, and the often immature business environments in which CCOs operate dictate that those selected for contingency operations are well-trained and qualified.

3. Train as you fight. This dictum is not just for the warfighting community. Those engaged in contingency contracting operations need classroom training, online assets, realistic and rigorous immersion exercises, and major field exercises to practice and hone their craft.

4. CCOs operate in a 21st century technological operating environment. CCOs cannot afford to be technology challenged. Dramatic improvements have been made with respect to business processes and the introduction of electronic business tools into the contingency contracting environment. CCOs must be able to adapt rapidly to changes in technology and the introduction of new business processes and tools into the contingency contracting operation.

5. While much has been written and revealed about contractual abuses, fraud, and mismanagement, the overwhelming majority of personnel, both military and civilian, deployed and performing reachback operations, in support of contingency contracting operations are hard working, well-trained professionals to whom we owe a huge "thank-you" for the dedication and caring they bring to the support of contingency operations.

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Program Complexity

Can We Understand It? Can We Overcome It?

Stephen Hayes ■ *Daniel Kopunic* ■ *Roy Wood*

In a 2009 Rand report on defense acquisition, Jeffrey Drezner, a senior policy researcher, wrote, "The products of the Department of Defense (DoD) acquisition process are perceived as becoming increasingly complex, emphasizing multifunction and multimission system configurations.... The management and oversight of these complex programs have similarly become more complex. Changes may be needed in the organizations and procedures used to manage the development, production, and sustainment of these complex weapon systems."

Complex systems are typically systems of systems, which possess emergent characteristics and are created when many independent (and not-so-obvious dependent) factors interact and interconnect in ways that are non-linear, often unexpected or unknown, and sometimes even chaotic in nature. One often-quoted idea from chaos theory holds that a butterfly flapping its wings in one part of the world may be responsible for causing a typhoon in another. Small, seemingly innocuous decisions or initial conditions that are established early in an acquisition program can create far-reaching and surprising downstream consequences to cost, schedule, and performance, thereby eroding longer term benefits. These nonlinear and seemingly unknown effects are undoubtedly present in most of today's complex acquisition programs, but as yet, we do not possess the tools, techniques, or holistic understanding of unknown system tipping points to predict or even measure this type of phenomenon.

How then does one go about deciding what changes to make that will successfully or even adequately address this complexity? Congress and the Department of Defense have certainly tried. In the past 15 years, Congress has added more than 500 sections of acquisition provisions to Title VIII of the National Defense Authorization Act. Similarly, the Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement now contain nearly 3,000 pages of acquisition regulations to try to control the system processes—in spite of which, defense acquisition hasn't been substantially improved. Secretary of Defense Robert Gates, testifying before the Senate Armed Services Committee, said that "a risk-averse culture, a litigious process, parochial interests, excessive and changing requirements, budget churn and instability, and sometimes adversarial relationships within the Department of Defense and between DoD and other parts of government" have created "unacceptable problems" in acquisition programs. Gates' description highlights all four types of complexity: structural, technical, directional, and temporal (as identified by Kaye Remington and Julien Pollack in their 2007 book *Tools for Complex Projects*).

A Global Solution for a Global Problem

Fortunately or unfortunately, these problems are not unique to U.S. Defense acquisition. Case studies from around the world demonstrate that existing linear processes, tools, and approaches are not in themselves sufficient for the consistent successful delivery of complex projects. Addressing the global problem of program waste calls for a multinational partnership and collaboration to explore the ideas of complexity in program management; to create tools and methodologies; and to exchange complex program knowledge through understanding lessons learned and better practices.

The International Centre for Complex Project Management (ICCPM) was established to accomplish just such a mission. The ICCPM is directly supported by Australian, United Kingdom, American, and Canadian government partners as well as many major multinational defense and industry corporations. It is now a substantial network of global corporate, government, academic, and professional organizations committed to better management and delivery of complex projects/programs across all industry and government sectors.

The ICCPM provides international leadership in the advancement of knowledge, applied practice, and delivery excellence in the management of complex projects, enabling the global community to better deliver sustainable complex projects with real social, environmental, and economic benefits for the future.

Through a series of roundtable discussions and knowledge-sharing forums in Australia, North America, Europe, and Asia, the ICCPM developed its first paper addressing complexity: "Conspiracy of Optimism" (authored by Michael Cavanaugh in 2009). The study explored technical, psychological, and political reasons for chronic cost overruns in large, complex projects. The study purports that the conspiracy of optimism occurs among the parties involved in large, complex projects even though they know their own reality but won't (or can't) admit it to one another or themselves. This behavior is tacitly encouraged by the various incentive systems in which industry and government decision makers know that "pessimists don't get programs," to quote Cavanaugh. The paper concludes with 11 specific issues to help frame the important aspects of program complexity:

- **Unaccommodated or misaligned stakeholder views of success.** Failure to align expectations of powerful program stakeholders can slow, or derail, even the best efforts.
- **Tension between product success and project success.** Paradoxically, project outcomes like Boston's "Big Dig" tunnel and Sydney's Opera House are considered successful in hindsight, though at the time, they both were behind schedule and grossly over budget.
- **Programs bending to political and public relations pressure.** Lack of awareness and planning for events in a complex program's external environment result in rework costs, schedule slips, and possible cancellation.
- **Lack of understanding or acknowledgement of nontechnical risk.** Current program risk tools and techniques are focused on technical risks, but many program risks result from nontechnical leadership, organizational behavior, and human factors issues.
- **Use of competition as a weapon.** In a competitive environment with few bidders, winner-take-all competitions can threaten the very survival of the losers, driving undesirable behaviors like underbidding to win, protests, etc.
- **Institutionalized procurement practices.** Rigid, one-size-fits-all procurement practices limit agility and flexibility in complex programs to respond to risks and opportunities.
- **Few project managers are equipped to be project-delivery leaders.** Effective complex project managers must be trained and experienced leaders in a wide variety of disciplines, including engineering, law, economics, and human resources. They must also be selected from those

leaders who have the personality to deal effectively with uncertainty and volatility inherent in complex projects.

- **Lack of opportunity for engagement between government and industry.** Pre-award protocols are rigid and not well suited to full understanding and alignment of goals regarding the outcome and mutual benefits of the program.
- **Future capabilities are predicated on obtaining rational estimates.** Today's incentives drive unconstrained requirements, coupled with unrealistic cost/schedule estimates, leading to an unaffordable and unachievable warfighting portfolio.
- **Current tools and decision processes are unsuitable for analyzing uncertainty.** New tools and techniques are needed for managing complex projects.
- **There is an inevitability of scope creep, especially if the project is contracted too early.** Programs dependent upon scientific or engineering breakthroughs for success are all too prevalent in the portfolio.

One early implication was the need for a different type of educational approach and implementation mindset, if the issues of complex project management are to be successfully met in practice. The ICCPM has partnered with the Queensland University of Technology in Australia to develop an executive master's degree program in complex project management. The program is an integrated and intensive program that facilitates leadership, behavioral change, and transference of skills and knowledge into complex project environments. Students are taught advanced risk management techniques; systems thinking; innovation and change management; and, among many other things, to recognize and counter the psychological and behavioral factors that contribute to poor decision making and the conspiracy of optimism. ICCPM and Queensland University of Technology are looking to export the curriculum to the United States and Europe through partnerships with high-caliber universities. Short training courses drawn from select curriculum modules and materials are also being developed and deployed in a variety of government and industry venues.

Developing a Body of Knowledge

ICCPM's current project is to develop a comprehensive complex project management body of knowledge and stand-alone white paper/executive summary, to frame the issues contributing to program complexity and to discuss areas for improvement within complex program dynamics. Contributors and subject matter experts from around the world are collaborating to produce the white paper with a projected delivery in spring 2011. The Defense Acquisition University, the Industrial College of the Armed Forces, and many other recognized individuals and groups from U.S. industry and academia are contributing to the effort.

The final consolidated documents are expected to guide and inform governments and businesses on the investments they need to make to improve complex project management and service delivery. The white paper will also outline advice for future policy design and implementation. As a framework, the white paper will also recommend a global research "agenda" to prioritize deeper study into contributing areas impacting program complexity and successful delivery.

Large programs tend, by their very nature, to be (or become) very complex. The traditional tools and techniques used to manage project cost, schedule, and performance fall short when trying to manage programs in a complex environment with significant uncertainty and ambiguity.

Contents of the white paper are expected to address (or at least pinpoint for more research) the underlying factors that make a complex project complex, and to develop understanding into what unique competencies are required to manage a complex project. It will also discuss the implications of executive behaviors and decision making, risk management, improvements in commercial management, stakeholder management and engagement, and knowledge management. One of the longer term goals is to identify or create a specific suite of tools to assist with the management of complex projects. The white paper will also address organizational culture, communication, and relationships.

Bringing Order to Chaos

Large programs tend, by their very nature, to be (or become) very complex. Much of the complexity has to do with the cognitive understanding of ourselves as humans and how we interrelate with hard systems. The traditional tools and techniques used to manage project cost, schedule, and performance fall short when trying to manage programs in a complex environment with significant uncertainty and ambiguity. Improved, ongoing research is needed into the specific issues that complexity brings to project management to develop better policy, practices, and tools. The ICCPM, together with its global partners, has launched an aggressive campaign to bring order to chaos by creating global awareness and is forging a new paradigm in complex project management.

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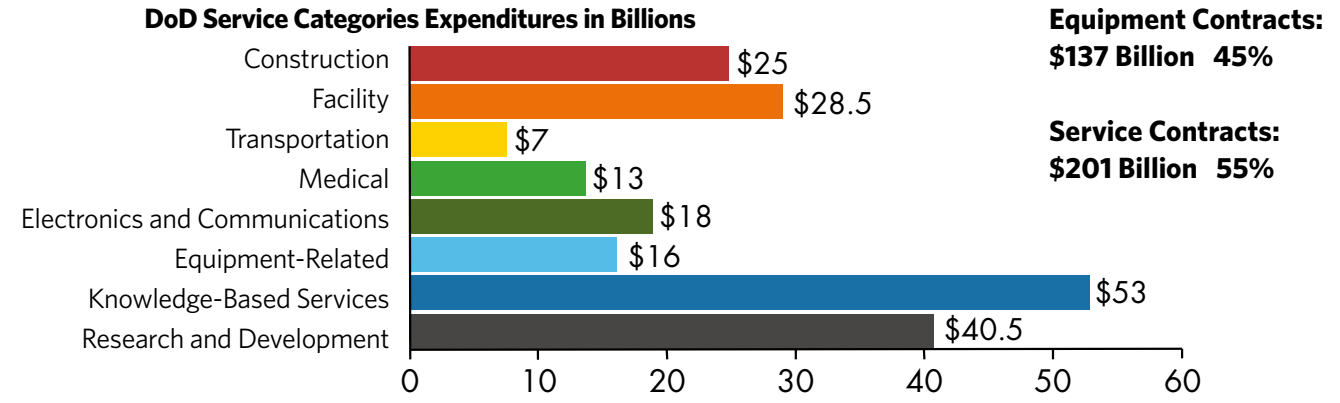
Acquisition of Services: A Standard Process

Dennis J. Beers

Many of us are familiar with the memos and directives from Under Secretary of Defense for Acquisition, Technology and Logistics Dr. Ashton B. Carter regarding "Improving the Tradecraft in Services Acquisition." The Defense Acquisition University (DAU) has taken a leading role in developing a process to train the acquisition community on how to more effectively acquire services. With over half of the total expenditures across DoD going toward the acquisition of services ($212.8 billion) in FY09, educating the workforce engaged in services is critical. In fact, the total expenditure of services has exceeded spending on supplies and equipment for more than 10 years (Figure 1). This article will discuss the process DAU is currently using in its curriculum and some of the tools available to anyone involved in the acquisition of services.

Figure 1. FY10 Dollars Spent
DoD Total Contract Expenditures: $367 Billion



Source: Federal Procurement Data System Next Generation

In the services acquisition arena, the core of DAU's training is the Services Acquisition Workshop (SAW). DAU has typically conducted two workshops per month since October 2009 for all branches of the Armed Forces and several DoD agencies. The SAW is designed as a just-in-time team workshop to facilitate a specific acquisition team and its requirements through a seven-step services acquisition process (Figure 2). During the 4-day workshop, the team receives training on how to develop and execute performance-based services requirements and can directly apply the learning to its specific requirement. The goals of the SAW are to help acquisition teams:

- Develop more effective and measureable performance-based requirements for services.
- Align acquisition strategies to achieve the desired mission results.
- Understand the importance of taking a team approach to their requirement.
- Focus on applying the principles of performance-based acquisition.

The process begins with a mission requirement for a service essential to the successful execution of the organization's mission. The services acquisition process consists of three phases—planning, development, and execution—with each phase building upon the previous one.

The planning phase, as depicted in steps 1, 2, and 3 of Figure 2, lays the foundation for the services acquisition. During the planning phase, the acquisition team is formed and obtains the time and resources required to support the acquisition. The team will then baseline and analyze its current services strategies, identify problem areas and projected mission changes, and solicit a requirements definition from stakeholders to define the key performance outcomes expected from the services acquisition. The team also analyzes the marketplace to assess current technology and business practices, competition and small business opportunities, and existing and potential new sources of providing the service; the team then determines if commercial buying practices can be used.

Figure 2. Service Acquisition Plan

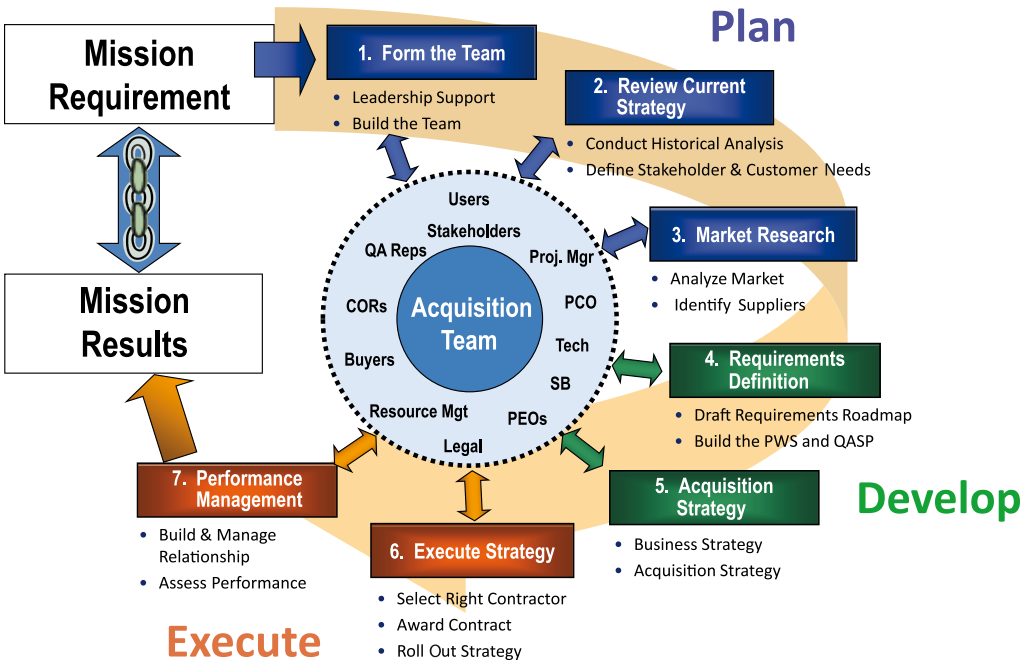


Figure 3. Defense Acquisition University Service Acquisition Mall (SAM)

DAU's Service Acquisition Mall (SAM) is intended to help you get your job done by providing usable tools and templates to create your performance-based service acquisition requirements. Each of the "Wings" on the Mall Map below contains information related to a category of services.

Seven Steps to the Service Acquisition Process						
STEP ONE	STEP TWO	STEP THREE	STEP FOUR	STEP FIVE	STEP SIX	STEP SEVEN
Form the Team	Review Current Strategy	Market Research	Requirements Definition	Acquisition Strategy	Execute Strategy	Performance Management

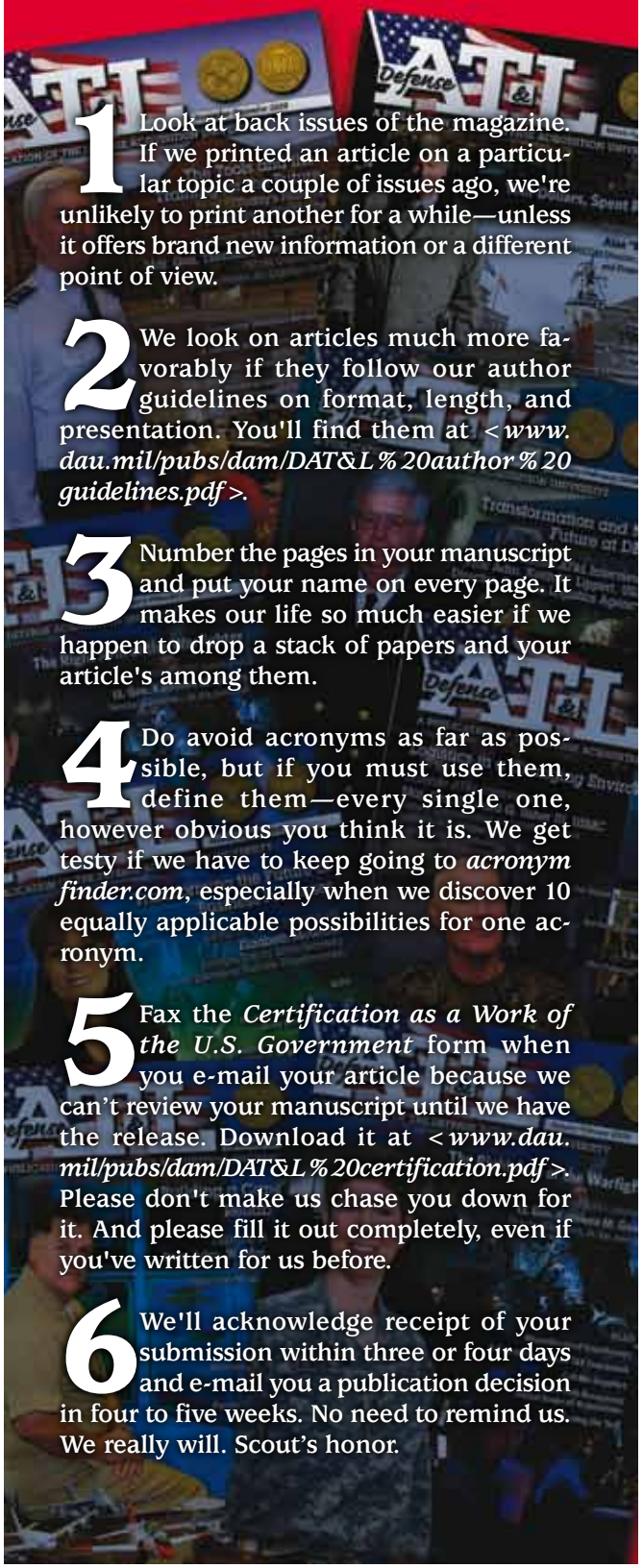
During the development phase—steps 4 and 5—a requirements roadmap process is used to define performance objectives and standards, allowable variations, and method of performance assessment. After the team completes the roadmap, team members will then be in the best position to develop a Performance Work Statement (PWS) and Quality Assurance Surveillance Plan (QASP). During this phase, they will also identify their funding sources, develop a government cost estimate of the required service, and solicit industry feedback on their working documents. Finally, the team will develop an acquisition strategy that leverages contract type and performance incentives to deliver a best-value mission performance to the customer. The basic performance principle is to tell the contractor what the performance results are, not how to do the job. Let industry develop the solution.

In the execution phase—steps 6 and 7—the team puts all the customer's planning and development efforts into action. Team members create a solicitation document that formally communicates to industry the customer's requirements and business plan. The team then receives contractor proposals detailing how each contractor proposes to meet the customer's performance objectives. After all the proposals are in, the team evaluates the contractors' proposals against criteria that will best determine the success of a potential contractor's approach. After contract award, the service provider should become the customer's strategic partner in driving innovation and improvements to mission performance outcomes. This part of the process involves two key areas: administering contract requirements, such as invoicing and payments, and managing the relationships and expectations of both the contractor and customers in meeting the terms of the contract and achieving the required mission performance results. At this point, the customer also starts the planning phase for a follow-on acquisition if a continuing need exists for the service being provided.

This seven-step process has been incorporated into the DoD Guidebook for the Acquisition of Services, which has been rewritten by the members of the DAU Services Acquisition Directorate. The guidebook is currently going through the coordination process within DoD. Not only does this describe each step in detail, it also provides practical examples to assist the acquisition team as it goes through the planning, developing, and execution phases of the acquisition of services process.

Several other DAU learning assets have incorporated this same process. The ACQ 265 classroom course (Mission-Focused Services Acquisition) is similar to the SAW and is now working real-world requirements with the students. A couple of online courses also are available for anyone to learn more about the acquisition of services. These include Continuous Learning Curriculum (CLC) 013–Services Acquisition and CLC

A Six-pack of Tips for Defense AT&L Authors



1 Look at back issues of the magazine. If we printed an article on a particular topic a couple of issues ago, we're unlikely to print another for a while—unless it offers brand new information or a different point of view.

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6 We'll acknowledge receipt of your submission within three or four days and e-mail you a publication decision in four to five weeks. No need to remind us. We really will. Scout's honor.

With over half of the total expenditures across DoD going toward the acquisition of services ($212.8 billion) in FY09, educating the workforce engaged in services is critical.

106–Contracting Officer Representative. Both of these also follow the seven-step process.

DAU has also developed the Services Acquisition Mall (SAM), an easy-to-access, easy-to-understand site with knowledge, training, templates, and tools to help develop effective services acquisitions. SAM (Figure 3) also integrates the seven-step process and uses a shopping-mall construct as an easy way of graphically grouping similar types of services. These groupings of services align with Under Secretary of Defense for Acquisition, Technology and Logistics Dr. Ashton Carter's taxonomy for services. SAM provides a convenient way to share best practices, templates, and training. The website was launched in January 2010 and can be accessed at https://sam.dau.mil. SAM, which can be used by anyone, hosts training videos on each step of the services acquisition process and also many of the products that are developed during each phase. The training is even downloadable as MP4 files to play on any compatible piece of equipment. Still being refined is the Automated Requirements Roadmap Tool, which is similar to a TurboTax® tool; it uses a standardized template to develop the PWS and QASP.

To obtain more information on any of the courses offered by DAU on the acquisition of services or the SAM, contact either Lyle Eesley, director , Center for Services Acquisition (lyle.eesley@dau.mil), or Dennis Beers, deputy director (dennis.beers@dau.mil). They can also be reached at 703-805-4853 or 703-805-5137, respectively.

Beers *is a professor of contract management, Defense Acquisition University, Fort Belvoir, Va.*

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Defense AT&L

Writer's Guidelines in Brief

Purpose

Defense AT&L is a bi-monthly magazine published by DAU Press, Defense Acquisition University, for senior military personnel, civilians, defense contractors, and defense industry professionals in program management and the acquisition, technology, and logistics workforce. The magazine provides information on policies, trends, events, and current thinking regarding program management and the acquisition, technology, and logistics workforce.

Submission Procedures

Submit articles by e-mail to datl(at)dau.mil or on disk to: DAU Press, ATTN: Managing Editor, 9820 Belvoir Rd., Suite 3, Fort Belvoir VA 22060-5565. Submissions must include the author's name, mailing address, office phone number, e-mail address, and fax number.

Receipt of your submission will be acknowledged in five working days. You will be notified of our publication decision in two to three weeks.

Deadlines

Issue	Author Deadline
January-February	1 October
March-April	1 December
May-June	1 February
July-August	1 April
September-October	1 June
November-December	1 August

If the magazine fills before the author deadline, submissions are considered for the following issue.

Audience

Defense AT&L readers are mainly acquisition professionals serving in career positions covered by the Defense Acquisition Workforce Improvement Act (DAWIA) or industry equivalent.

Style

Defense AT&L prints feature stories focusing on real people and events. The magazine also seeks articles that reflect your experiences and observations rather than pages of researched information.

The magazine does not print academic papers; fact sheets; technical papers; white papers; or articles with footnotes, endnotes, or references. Manuscripts meeting any of those criteria are more suited to DAU's journal, *Acquisition Research Journal (ARJ).*

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